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:Minutes of Meetings and Workshops held during year 1

Due date of deliverable: 12

Actual submission date: 12

Start date of project: 1/10/2006 Duration: 3 years

Organisation name of lead contractor for this deliverable: ISMAR-BO

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	
CO	Confidential, only for members of the Consortium (including Commission Services)	X

Minutes of the NEAREST Kick-off Meeting

October 9 - 11, 2006

Venue
CNR - Bologna Research Area
Via Gobetti, 101 – 40129 Bologna (Italy)
Aula 215

List of Participants

Participant name	acronym	9 Oct	10 Oct	11 Oct
Maria Ana Batipsta	FFCUL	X	X	X
Livia Moreira	FFCUL	X	X	X
Luis Matias	FFCUL	X	X	X
Pedro Terrinha	FFCUL	X	X	X
Cesar Andrade	FFCUL	X	X	
Juan Jose Dañobeitia	CSIC	X	X	X
Eulalia Gracia	CSIC	X	X	X
Valenti' Sallares	CSIC	X	X	X
Willfried Jokat	AWI	X	X	X
Mechita Schmidt-Aursch	AWI	X	X	X
Marc-André Gutscher	UBO	X	X	X
Paolo Favali	INGV	X	X	X
Laura Beranzoli	INGV	X	X	X
Davide Embriaco	INGV	X	X	X
Hans W.Gerber	TFH	X	X	X
Fernando Carrilho	IM	X	X	X
Herculano Caetano	XISTOS	X	X	X
Azelarab El Mouraouah	CNRST	X	X	X
Abdelouahad Birouk	CNRST	X	X	X
Mohamad Hafid	CNRST	X	X	X
Jose' Morales	UGR	X	X	
Nevio Zitellini	ISMAR	X	X	X
Francesco Chierici	ISMAR	X		X
Fabiano Gamberi	ISMAR	X	X	
Michael Marani	ISMAR	X		X
Giuseppe Stanghellini	ISMAR	X	X	
Luigi Vigliotti	ISMAR		X	X
Gabriela Carrara	ISMAR	X	X	X
Luca Pignagnoli	ISMAR	X	X	X
Luca Bellucci	ISMAR	X	X	X
Alina Polonia	ISMAR	X	X	
Luca Gasperini	ISMAR		X	
Lucilla Capotondi	ISMAR	X	X	X
Alessandra Borgatti	ASTER	X	X	X
Maria Grazia Zucchini	ASTER	X	X	X

Day 1 - Monday 9 October 2006

09:30- 10:30 Opening session
The meeting was opened by the project coordinator Mr.Zitellini. After a warm welcome address to everybody in CNR – ISMAR facilities, Mr.Zitellini presented a short project overview, illustrating the Nearest key original concepts, the project overall objectives, basic project structure and main expected results (see Project presentation slides on the project website). Importance of a good cooperation among partners was stressed and links with other European projects outlined, in particular taking into consideration the SWIM project supported by the European Science Foundation and the TRANSFER project coordinated by the University of Bologna.

10.30- 12.45 Partners presentation
Each partner provided a brief presentation of its organization, pointing out the most relevant experience in the topic of the project and the main expectations from the project implementation. A mention to the internal staff assigned to the project execution was provided as well. Each presentation was supported by Power point slides or PDF files, available on the project website (http://nearest.bo.ismar.cnr.it/).

Introductory speeches were provided by

Nevio Zitellini	ISMAR	Partner_01_ISMAR.ppt
Maria Ana Batipsta	FFCUL	Partner_02_FFCUL.ppt
Juan Jose Dañobeitia	CSIC	
Mechita Schmidt-Aursch	AWI	Partner_04_AWI.pdf
Marc-André Gutscher	UBO	Partenr_05_UBO.ppt
Paolo Favali	INGV	Partenr_06_INGV.ppt
Hans W.Gerber	TFH	Partenr_07_TFH.ppt
José Morales Soto	UGR	Partenr_08_UGR.ppt
Fernando Carrilho	IM	Partenr_09_IM.ppt
Azelarab El Mouraouah	CNRST	Partenr_10_CNRST.ppt
Herculano Caetano	XISTOS	

Finally it was introduced the Italian organisation (Aster) supporting Ismar in the general project management: and the reference persons in charge of carrying out project assistance Ms. Zucchini and Ms. Borgatti.

12.45 – 13.00 Introduction to WP analysis sessions
The last morning session was devoted to the introduction of the afternoon session related to a careful analysis of all technical work packages, putting emphasis on the expected outputs Actually the output of the WP session was intended to be a list of specific matters and issues to be discussed on Tuesday morning by a dedicated working groups.

13:00 – 14:00 Lunch break

14.00 – 18.30 Workpackage analysis sessions

Per each technical workpackage (WP1 to WP8) a 30 minute session was organized. Each session was opened by an introduction from the WP leader, outlining activities to be carry out, main goals to be achieved, the scientific aspects to be tackled, deliverable to be produced and foreseen milestones. The WP leader in some cases was supported by further speakers, illustrating specific tasks. In most cases presentations were supported by Power Point slides, available on the project website.

Maria Ana Baptista	FFCUL	NEAREST_WP01_Baptista.ppt
Pedro Terrinha	FFCUL	NEAREST_WP01_Terrinha.ppt
Valenti Sallares	CSIC	NEAREST_WP02_Valenti.ppt
Luis Matias	FFCUL	NEAREST_WP03_Matias.ppt
Laura Beranzoli	INGV	NEAREST_WP04_Favali.ppt
Jose' Morales Soto	UGR	NEAREST_WP05_Morales.ppt
Eulalia Gracia	CSIC	NEAREST_WP06_Gracia.ppt
Maria Ana Baptista	FFCUL	NEAREST_WP07_Baptista.ppt

An open discussion phase took place at the end of each WP session in order to let the main criticalities emerge as detailed here below:

WP1 Analysis -Tsunami source identification (Leader: FFCUL)
presentations made by Maria Ana Baptista and Pedro Terrinha)

Task 1.1 Review of sources of tectonic origin
Task 1.2 Review of sources due to slope instabilities
Task 1.3 Synthesis on tsunamigenic sources, characterisation and selection of the site for the deployment of a seafloor platform based on the GEOSTAR technology

Critical aspects to be taken in careful consideration:

1) Interaction with WP2
2) Collection of the whole available MCS data set
3) Acquire some TGS data? Permission to have access to it?

WP2 Analysis: Tsunami source characterisation (WP 2 Leader: CSIC)
presentations made by Valenti Sallares)

Task 2.1 Reprocessing and Pre-stack depth migration of existing MCS data
Task 2.2 Wide-Angle reflection/refraction acquisition experiment
Task 2.3 Processing and modelling of wide-angle seismic data

Critical aspects to be taken in careful consideration:

1) Which pre-stack MCS line to be processed ?
2) To choose the location of refraction line (on top of pre-existing MCS, new lines?)
3) Time required for the processing ?
4) Ship time (different possible scenario)
5) Application for LSF of Geomar !!
6) Number of OBS available by the team (different scenario) ?
7) Shooting on top of AWI OBS (do we have to plan a separate cruise for that, can we do it at the end of the 12 months deployment ?

WP3 Analysis Seismological monitoring (WP3 Leader: AWI)
presentations made by Luis Matias)

Task 3.1 Application for the broadband OBS
Task 3.2 Preparation of the cruises
Task 3.3 Cruise for deployment of the broadband OBS
Task 3.4 Cruise for recovery of the broadband OBS

Task 3.5 Pre-processing and database compilation
Task 3.6 Processing of the OBS data

Critical aspects to be taken in careful consideration:

1) Calibration campaign (see above) ?
2) PhD student to be planned for other two years after the termination on NEAREST
3) Who can give help on this matter ?
4) Planning to embark equipment on board Urania

WP4 Analysis Tsunami signal detection (WP4 Leader: INGV)
presentations made by Laura Beranzoli)

Task 4.1 Definition of sensor requirements and sensor selection; requirements of the detection software (e.g., detection algorithm, triggering threshold, messages) .
Task 4.2 Design and development of modifications (e.g., sensor supports of the frame); design and development of the software .
Task 4.3 Integration of new sensors/devices and new software in the seafloor observatory, tests of the functionality in laboratory .
Task 4.4 Preparation planning and implementation of a long-term (about 1 year) mission; cruises for deployment and recovery. .
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.

Critical aspects to be taken in careful consideration:

1) Which kind of sensors have to be installed on the "GEOSTAR" ?
2) Kind of signal we have to send to the shore
3) Remember the restriction: max deployment depth= 3.500 meters
4) Planning to embark equipment on board Urania

WP5 Data integration / Integrated Tsunami Detection Network (WP5 Leader: UGR)
presentations made by Jose' Morales Soto)

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). This will involve i) Waveform sharing between data collectors, integration of seismic data including OBSs; ii) 1b Integration of tide gauge data; iii) Integration of multiparameter data from seafloor observatory.
Task 5.2 Development of automatic procedures for rapid determination of seismic parameters and definition of thresholds for triggering the tsunami detection procedures .
Task 5.3 Development of an effective tsunami detection methodology. Definition of thresholds for issuing different levels of alarm messages .
Task 5.4 Testing the tsunami warning system using synthetic data streams generated at WP8 .

Critical aspects to be taken in careful consideration:

1) Water level data integration
2) Common format of recording seismological data
3) Include GPS data/people ?

WP6 Analysis - Paleotsunami and Paleoseismic records (WP6 Leader: CSIC)
presentations made by Eulalia Gracia)

Task 6.1 Onshore sedimentological evidence of tsunami records
Task 6.2 Offshore sedimentological evidence of earthquake events
Task 6.3 Onshore-Offshore Correlation: Paleoseismicity and recurrence rate

Critical aspects to be taken in careful consideration:

1) Make a connection with the Spanish Geological Survey?
2) Campaign at sea ? Possible scenario !!
3) Planning of field work/selection of sites

WP7 Analysis Modelling of tsunami impact in SW Portugal (WP7 Leader: FFCUL)
presentations made by Maria Ana Baptista)

Task 7.1 Collation of the New Bathymetric Data
Task 7.2 Implementation of a numerical tsunami model for SW Portugal
Task 7.3 Simulation of the 1755 tsunami in the Boca do Rio area
Task 7.4 Production of inundation maps for Lagos-Sagres
Task 7.5 Validation of models

Critical aspects to be taken in careful consideration:

1) Cruise for multibeam acquisition? Who is going to organize (Scenario)?

WP8 Analysis - Feasibility study and prototype for an EWS (WP8 Leader: FFCUL)
presentations made by Luis Matias?)

Task 8.1 Simulation of tsunami generation scenarios
Task 8.2 Simulator for the decision-maker authorities

Critical aspects to be taken in careful consideration:

- No major problems envisaged at this stage !

Day 2 - Tuesday 11 October 2006

09:00 – 10:00 Definition of the Nearest Working Groups
Mr. Zitellini summarized the main outputs from the technical Workpackage sessions.-For each set of major problems pointed out during the WP analyses, a Working Group was established to identify the most proper strategies to face each possible difficulty during the project execution. Eventually it was decided to arrange 3 Working groups. For each Working group a coordinator and a rapporteur has been identified, moreover the complete list of participants was agreed as well.

WG1 took into considerations main critical issues relate to WPs 1-2-3
WG2 took into considerations main critical issues relate to WPs 4-5-8
WG3 took into considerations main critical issues relate to WPs 6-7

10:00-11:30 The Cooperation Agreement
Before starting the Working groups activity, a specific session was devoted to the final discussion related to the Nearest Cooperation Agreement (CA), starting from the initial version of the document sent to all partners before the meeting.
A special focus was put to the main critical CA issues (see the a specific CA Power point presentation illustrated by Ms. Zucchini), to obtain final consensus on terms, conditions and procedures to be adopted for a proper project management and implementation. All the modifications and integrations proposed by the partners to the initial CA version were discussed and final agreement was obtained for each specific issue. Decisions taken were reported in the CA Power Point presentation available on the Nearest website (file: consortium _agreement.ppt).
Finally Ms Zucchini described the procedure to be followed to get signatures of the definitive CA version and obtain the complete original signed documents to be sent to each project partner.

12:00 -13:00 Working Groups meetings Part I
14:00 - 16:00 Working Groups meetings PartII
3 parallel sessions were arranged

16:00 -17:00 Working Groups report elaboration according to a common format, taking into consideration technical planning for the whole project General

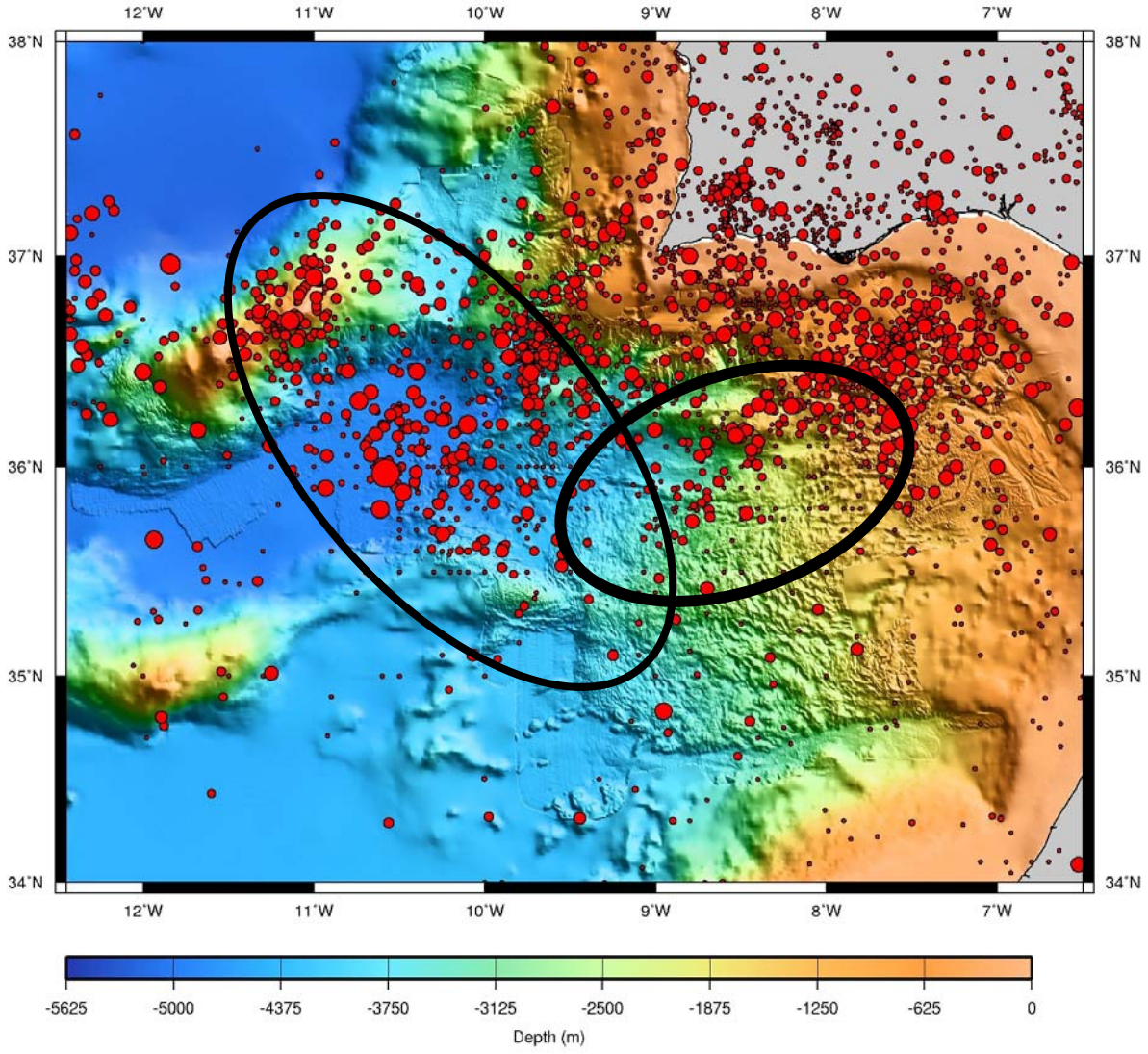
17.00 - 18.00 The Working Groups outputs: presentation of the WG reports to the general assembly
The output of the 3 working sessions are reported hereinafter:

NEAREST KICK-OFF MEETING

Working group	**1**
Focus on	WP1, WP2, WP3
Participating organisations	**Participant names**
CNR-ISMAR	Luca Gasperini - Gabriela Carrara
FFCUL	Pedro Terrinha
CSIC	Juanjo Danobeitia - Valenti Sallares
AWI	Wilfried Jokat - Mechita Schmidt-Aursch
UBO	Marc Andre Gutscher
INGV	/
TFH	/
UGR	/
IM	/
CNRST	Alzelarab El Moraouah
XISTOS	/
Meeting room	213
WG facilitator	Juanjo Danobeitia
WG rapporteur	Pedro Terrinha
WG Report	
Problems analysed	**01**. Interaction between WP1- WP2 **02**. Collection of the whole available MCS data set **03**. Acquire some TGS data? Permission to have access to it? **04**. Which pre-stack MCS line to be processed ? **05**. To choose the location of refraction line (on top of pre-existing MCS, new lines?) **06**. Time required for the processing ? **07**. Ship time (different possible scenario) **08**. Application for LSF of Geomar **09**. Number of OBS available by the team (different scenario) ? **10**. Shooting on top of AWI OBS (do we have to plan a separate cruise for that, can we do it at the end of the 12 months deployment ? **11**. Calibration campaign (see above) ? **12**. PD to be planned for other two years after the termination on NEAREST **13**. Who can give help on this matter ? **14**. Planning to embark equipment on board Urania
Solving methods identified	**01**. Interaction between WP1- WP2: - 1st make tectonic map (FFCUL and discuss with others); - 2nd select set of MCS of key geological features; - 3rd sellect MCS which to be depth migrated. (see sheet1). **02**. Collection of the whole available MCS data set **03**. Acquire some TGS (commercial MCS) data? Permission to have access to it? (FFCUL will inquire).

	04. Which pre-stack MCS line to be processed ? Check which have been pre-strack migrated and after tectonic map is completed decide upon which to migrate. Obtain velocity model and apply to convert TWT tectonic map into depth tectonic map. **05**. To choose the location of refraction line. **06**. Time required for the processing ? 2 months for each line. **07**. Ship time Question will remain open until end of WP1 because Hesperides won't be free until 15th Oct. - 2nd Nov. 2008. Urania time slot will be know at end of 2006. **08**. Application for LSF of Geomar. CSIC will apply ASAP. **09**. Number of OBS available by the team? 24 broad band (AWI) possibly one more from UTM to characterize noise in study area. **10**. Shooting on top of AWI's OBS. For selected area see figure sheet 2. **11**. Calibration campaign. Hesperides will shoot in June 2008. Urania can eventually shoot after deployement in September 2007. **12**. PhD to be planned for other two years after the termination on NEAREST. Nevio will search for extra funding for PhD-AWI. UTM has funding for PhD in geophysics; advertise all contracts on NEAREST web page. **13**. Who can give help on this matter? Each team will look for adequate candidates. **14**. Planning to embark equipment on board Urania. ISMAR will take care of this issue.
Checking points	
Responsible/s	
SC-decision	
AB involvement	

Prestack depth migration lines							
mcs-lines	actions done		criteria	line-quality	source	responsible	2month for altogether
IAM-3	depth converted		st. Vicent Cape-Coral Patch Ridge			FFCUL/CSIC	2 months
IAM-4	to be checked		Accross Gorringe				2 months
CG-1			Perpendicular to Guadalquivir B.			FFCUL/CSIC	2 months
SW-1			N-S Portimao B.			CSIC	2 months
SW-2			NW-SE Coral Patch Ridge			CSIC	2 months
SW-13			NW-SE Coral Patch Ridge			UTM	2 months
SISMAR-22	pre-stack depth mig.		NW-SE cont. AR-10			UBO	
AR-10	depth-converted		Acrooss M. Pombal			ISMAR	2 months
AR-01	pre-stack depth mig.		E-W Gibraltar				
AR-06	partially done		NW-SE Cora Patch Smt.				2 months
REFRACTION LINES PROPOSED							
OBS DEPLOYMENT (LONG LASTING)							
AWI	24 OBS	2x20 f container					
first location area for seismicity network (see map)							
	first approach		calibration shot				
ship	deployment time	recovery time	June 2008 (Hesperides ?)			AWI/ CSIC	
R/V Urania	september 07	september 08				ISMAR/AWI	


12°W
11°W
10°W
9°W
8°W
7°W
38°N
37°N
36°N
35°N
34°N
-5625
-5000
-4375
-3750
-3125
-2500
-1875
-1250
-625
0
Depth (m)

Working group	**2**
Focus on	WP4,WP5, WP8
Participating organisations	**Participant names**
CNR-ISMAR	Francesco Chierici - Luca Pignagnoli
FFCUL	Luis Matias
CSIC	/
AWI	/
UBO	/
INGV	Paolo Favali - Laura Beranzoli-Davide Embriaco
TFH	Hans Gerber
UGR	Jose' Morales
IM	Fernando Carrillho
CNRST	Abdelouahad Birouk
XISTOS	Herculano Caetano
Meeting room	216
WG facilitator	Paolo Favali
WG rapporteur	Laura Beranzoli
WG Report	
Problems analysed	**01**. Kind of signal we have to send to the shore **02**. Which kind of sensors have to be installed on the "GEOSTAR" ? Remember the restriction: max deployment depth= 3.500 meters. Planning to embark equipment on board Urania **03**. Water level data integration **04**. Common format of recording seismological data **05**. Include GPS data/people ??
Solving methods identified	A working Group is established among WP 4-5-8 over the whole project duration: participants will exchange mails on most important aspects. Participants are: Paolo Favali paolofa@ingv.it Laura Beranzoli beranzoli@ingv.it Birouk Abdelouahad birouk@cnrst.ma Daniel Stich Daniel@bo.ingv.it Fernando Carrilho Fernando.carrilho@meteo.pt Luis Matias lmatias@fc.ul.pt Herculano Caetano herculano.caetano@xistos.com Jose Morales morales@iag.ugr.es Hans Gerber hwgerber@tfh-berlin.de Giuseppe Stanghellini g.stanghellini@ismar.cnr.it Francesco Chierici chierici@ira.inaf.it Davide Embriaco embriaco@ingv.it Luca Pignagnoli l.pignagnoli@isac.cnr.it Gerardo Alguacil alguacil@iag.ugr.es **WP4 (refer items to Problems analysed)** **01**. The types of signal to be acquired by GEOSTAR are: ground motion, water pressure.

	02. The sensors that are necessary to acquire the signals are: broad band seismometer, hydrophone, Differential Pressure Gauge (DPG), accelerometer (to overcome clipping problems, continuous and threshold); In order to send to a shore stations significant signals/parameters for tsunami warning, seafloor signal processing is needed on seismometer (100 Hz sampling rate recommended), DPG (1 Hz sampling rate, threshold is set according to the difference between the predicted tyde signal and actual DPG signal), accelerometer (triggered by seismometer). Transmission shall be trough the buoy equipped with radio link (max distance about 100 km) and satellite. Meteorological conditions do not affect the radio and satellite transmission up to 6+ sea state; Signal/parameter transmission mode from seafloor to shore: i) 1 automatic message per hour or day; ii) transmission upon request from shore iii) the seismometer and DPG independently shall trigger the warning message transmission. Trigger algorithm can be first tested on SN-1 signals. Separation of the real situation (event occurring) and of procedure for message transmission. In case of event trigger by the seismometer, the DPG time signal (time window could be in total 1 hour segmented in different messages) and a decimated signal of the seismometer (5-20 Hz, time window could be 30s—60s with a pre-event time of 3s-5 s) should be transmitted for warning purpose. **03**. Signals from operating tyde gauges are sample once every 2 -10 minutes; there is the need to increase the sampling rate (either 1 Hz or 1 sample every 15 s). **WP5** **04**. Each country among Portugal, Spain and Morocco will have Data Collector (e.g., IM site in Lisbon for Portugal) and each sensors shall have an IP address to allow the Data Collector to poll the sensors and retrieve data by accessing to the dedicated computer and convert in suitable format. Data Collector of each country will work on the seismological data format homogeneity. In principle all data will have the same format as seismological data. Data to make available for Data Collector are meteo data (e.g., temperature, pressure, wind velocity; wave height could be too expensive). MINI-SEED will be the standard format for data exchange (OBS data included) To establish in the Atlantic part of Morocco some sensors, sites are already selected; however noise studies are necessary. By the end of 2006 three more Broad band seismometers will be installed in real time transmission to Lisbon by IM. SEISCOMP system will be the best collector; it has to read the data from CNRST and UGR seismological networks. Related acquisition systems will be homogenised. Explore the possibility to cooperate with Western-Med and FOMAR projects (Luis Matias, Jose Morales). How to integrate the OBS data (50 Hz sampling rate) in the general data base?

	Deliverables D19-requirements and design of tsunami triggering system and D20 -specification of the tsunami detection system can be the base of a document to be produced within the end of the project as reference on a general architecture of which NEAREST will build only a part as a step toward a TEWS. **WP8** Need to define the target of the simulator (Xistos and FFCUL). The simulator will give the max run-up based on a simplified description of the coasts. The steepness of the coasts is a necessary input data. This will make the simulator as real as possible. Eventually partners will be asked to provide information on the coasts shape. Inundation maps are input to the simulator only where we know the topography of the coastal areas. Simulator will be further based on different domains (e.g., distribution of population, location of main services like hospitals). Simulator could be a training tool to understand which are the weak rings of the chain from inundation map, to communication with civil protection, to test the procedures aimed at starting actions for population safety. The simulator is not a crisis management tool but it will simulate a crisis to estimate the consequences of a tsunami. A second module of simulator will provide synthetic data streams to Data Collector for testing.
Checking points	**WP4** 1.5 -2 month circulation of a document of INGV about the requirements of sensors and measurements at the seafloor, requirements on the transmission. 2.5-3 reaction from partners and final version of the document issued. D10 will be anticipated in month 3. **WP5** By the end of 2006 three more Broad band seismometers will be installed in real time transmission to Lisbon by IM. Installation of new broad-band sensors in Morocco will be after 1.5 year of the project beginnig. Sensors (at least 1) will be provided by UGR. **WP8** Definition of the target of the simulator on side Xistos and FFCUL. WHEN
Responsible/s	INGV, Paolo Favali – specifications of the seafloor signal sensors, acquisition and transmission. UGR, Josè Morales – installation of broad band sensors in Morocco FFCUL, Luis Matias, and UGR, Josè Morales – tray to establish link with Western-Med and FOMAR projects Xistos, Caetano, and FFCUL, Luis Matias - . target of the simulator
SC-decision	The participants to the working group accept the proposal from UGR, IM and

	FFCUL to make the following changes for deliverables of WP5: D16 IM instead of UGR D17 FFCUL+IM instead of UGR D18 IM instead of UGR D20 FFCUL instead of UGR The proposal will be submitted to the project Coordinator.
AB involvement	

Working group	**3**
Focus on	WP6, WP7
Participating organisations	**Participant names**
CNR-ISMAR	Micael Marani- Fabiano Gamberi, Luca Bellucci Alina Polonia- Lucilla Capotonti Vigliotti Luigi
FFCUL	Maria Ana Baptista - Cesar Andrade
CSIC	Eulalia Gracia
AWI	/
UBO	/
INGV	/
TFH	/
UGR	/
IM	/
CNRST	Mohamad Hafid
XISTOS	
Meeting room	214
WG facilitator	Maria Ana Baptista
WG rapporteur	Eulàlia Gràcia
WG Report – WP6	
Problems analysed	- Planning the field work /selection of sites for tsunami deposit studies - Connection with IGME for drilling onland - New coring /HR seismic campaign at sea (different scenarios) - Correlation work / synthesis of onshore/offshore data
Solving methods identified	***Task 6.1.: Onshore sedimentological evidence of tsunami deposits*** a) We plan an onshore sampling during the 1st year. Suggestion of a 1st meeting on the 24-26 November 2006. Topics to discuss: - State of the Art of knowledge: Sites/Reliability of pre-existing data; - How to core: equipment to be used and to be constructed (UNED) - Site Selection/Planning the field work: Spain, Portugal, Morocco - Transfer of expertise and analytical methodologies b) We have also discussed about looking for tsunami deposits offshore (no previous experience): - Tsunami deposits offshore can be first approached based on core BIGSETS (offshore Portimao) by Luigi Vigliotti (ISMAR) - Possibility to combine with the bathymetric cruise planned for WP7 to do some exploration survey for tsunami deposits offshore using a CHIRP system in very shallow areas (> 50 m depth) (e.g. Boca do Rio area, Cadiz area?) ***Task 6.2.: Offshore sedimentological evidence of earthquake events*** - Need to organize with Nevio about the possibility of taking some new gravity cores during the URANIA cruise in the Gulf of Cadiz in 2007 (deployment of GEOSTAR and OBS). Select to key areas for high-priority coring - There is a request for Hesperides / Sarmiento de Gamboa shiptime for Fall 2007 to Spring 2008 (NEAREST CORE). The cruise will be devoted to

	piston coring, multicoring, high resolution seismics, heat flow profiles during 15-20 days in channels, near fault areas (Horseshoe Fault, Coral Patch Ridge), Seine Abyssal Plain and Moroccan Margin. - Coordinate with UBO team (M.A.Gutscher) for the high-res. cruise and coring on the Moroccan shelf (sedimentation rates, fault activity?) ***Task 6.3. Onshore / Offshore correlation: Paleoseismicity and recurrence rate*** - Importance of time correlation, chronology and precise dating - We will contribute to the historical tsunami catalogue for Portugal, Spain and Morocco, with the sedimentological data we will get onshore and offshore
Checking points	***Task 6.1.: Onshore sedimentological evidence of tsunami deposits*** - Mohamed Hafid will do a preliminary field survey in Morocco (fall 2006) - We will explore the possibility of collaboration with IGME for the long (200-30 m cores) in Doñana area (J. Lario, UNED) - Need to discuss on our potential contribution on the definition of a tsunami deposit based on different proxies (see Task 6.3) ***Task 6.2.: Offshore sedimentological evidence of earthquake events*** - Need to produce a map of existing sediment cores from the Gulf of Cadiz (Eulàlia / Nevio) - Need to produce a map of existing CHIRP /TOPAS profiles from the Gulf of Cadiz (Eulàlia / Nevio) - Need to organize with UBO-Bordeaux first results of their cores and comparison with UTM-CSIC results in SW Portuguese margin. ***Task 6.3. Onshore / Offshore correlation: Paleoseismicity and recurrence rate*** - To explore the historical events catalogue of GITEC project (INGV-Rome) - From existing samples onshore and offshore, ISMAR team will explore the x-ray internal structure and magnetic signature of sediments as a potential diagnostic to differentiate high-energy deposits (storm deposits, washover deposits, turbidites, tidal inlets…)
Responsible/s	6.1. Cesar Andrade / Javier Lario / M. Hafid 6.2. Eulàlia Gràcia 6.3. Eulàlia Gràcia / Luigi Vigliotti / M. Hafid
SC-decision	
AB involvement	

WG Report WP7	
Problems analysed	**7.1** Bathymetric data for inundation model i) Input from sedimentologists ii) Input from sedimentologists iii) Datum collation **7.2** Implementation of a numerical tsunami model for SW Portugal. **7.3** Simulation of the 1755 tsunami in the Boca do Rio area **7.4** Inundation Maps **7.5** Model Parameters: Inputs to tsunami source calculations WP1 and WP5
Solving methods identified	**7.1** Collation of the New Bathymetric Data with a dedicated cruise. Homogenize data (Datum problem) **7.2** Implementation of a numerical tsunami model for SW Portugal. Grid Nesting: Implement computing techniques to obtain the best grid nesting To choose among different techniques to calculate run up: TsuN2, SWAN, other codes; CGUL in collaboration with CNRST Scholarship Close cooperation and exchange data with TRANSFER (Mauricio Gonzales + Miguel Miranda) **7.3** Simulation of the 1755 tsunami in the Boca do Rio area Input from sedimentologists: -Permission for data coring in the Algarve; Responsible Cesar Andrade; - Data from GITEC coing; Responsible Cesar Andrade; This should be complete by the end of 2007. - Reconstruction of the Paleo topographic surface upon which the tsunami run on, including contemporaneous erosion; Responsible Cesar Andrade. - Secular Variation of the earth magnetic field to identify the differential gaps upward the Boca do Rio valley; Estimated time for field work: 2 days Input costs: ISMAR (?) Responsible Luigi Vigliotti; **7.4** - Production of inundation maps for Lagos-Sagres Sites selection depending on pre-existing DEM Roughness parameters in collaboration with TRANSFER *Task 7.5 - Model parameter validation* Ocean bottom pressure data and focal parameters+magnitude+ epicenter provided by Input from ISMAR Fran cesco Chiericci/LMatias
Checking points	**7.1** Produce the bathymetric map **7.2** Grid Nesting; Inundation Model **7.3** Simulation of the 1755 tsunami Production of Virtual Tide Gages for several points at Boca do Rio Valley

	Check the results against historical and sedimentological data compare run in. distances estimated by sedimentologists and data from historical eyewitnesses **7.4** Inundation Maps Site Selection Existence and availability of DEM Production of preliminary map Inundation Maps
Responsible/s	**7.1** Miguel Miranda/ Joaquim Luis **7.2** Maria Ana Baptista/Miguel Miranda/M Gonzales (TRANFER) **7.3** Maria Ana Baptista/Cesar Andrade Gracia/Luigi Vigliotti **7.4** MiguelMiranda /Maria Ana Baptista/Pedro Soares **7.5** Maria Ana Baptista/FrancescoChiericci/Luis Matias
SC-decision	
AB involvement	

Day 3 - Wednesday 11 October 2006

9.00-10.30 Financial and administrative procedures
Mrs. Zucchini presented the main key issues related to the project fiancial administration, pointing out budget composition, cost models, payments modalities and financial reporting schemes (see the slides supporting the intervention are available on the project web site, file: Financial_issues.ppt). The Coordinator added some specifications about the pre-financing's bank transfer, distributing to everybody a paper copy of the budget breakdown with indication of the pre-financing amount to be transfer to each partner.
During the open discussion that followed, the partners had the opportunities to obtain clarification to a number of financial / administrative issues.

10:30-11:00 Project management issues
Mrs. Borgatti presented the management structure of Nearest as foreseen in the Consortium Agreement. A specific focus was made on reporting issues: periods, documents to be prepared and deadlines with an overview on the three year of the project (see the slides supporting the intervention are available on the project web site, file: management_issues.ppt). No specific questions raised from the partners.

The composition of the **Steering Committee** was agreed as follows:

Partner n.	Acronym	Steering Committee member
1	ISMAR	Nevio Zitellini
2	FFCUL	Maria Ana Baptista
3	CSIC	Juan Jose Dañobeitia
4	AWI	Willfried Jokat
5	UBO	Marc-André Gutscher
6	INGV	Paolo Favali
7	TFH	Hans W.Gerber
8	UGR	José Morales Soto
9	IM	Fernando Carrilho
10	CNRST	Azelarab El Mouraouah
11	XISTOS	Herculano Caetano

A initial list of scientists to be involved in the **Advisory Board** was drafted out with the contribution of all the partners. The Coordinator will circulate the list in order to obtain the complete references of all the proposed scientists. Each partner will have the possibility to propose further scientist.

11:00-11.30 During the **coffee break**, the Coordinator presented some logo proposals. A female jury selected two of the most representative logos and the general assembly took the final decision.

11:30-12:00 Communication and promotion issues
The coordinator presented the project website, on-line since the starting date of the project, and described the upcoming implementation of the restricted area. After an open discussion, the partners suggested that a specific proposal on the communication and dissemination development would be prepared by ISMAR as work package leader.
As for internal communication, it was proposed that the database of the relevant contact persons in each partners' institutions (collected during the meeting) would be made available in the restricted area. Moreover, the Coordinator distributed one web camera per partner in order to ease the communication flow in some specific occasions.

12:00-13:00 The TRANSFER project and its potential links with NEAREST
Mr. Tinti, coordinator of Transfer project (Tsunami Risk ANd Strategies For the European Region), presented an overview of the main objectives and activities that will be tackled during his project

and explained the possible collaboration with Nearest. The assembly of partners expressed a considerable interest and next steps of collaboration were agreed (back link, invitation to meetings, exchange of data, etc). Nearest Coordinator reminded to the partners the importance of these collaborations mentioning other EU funded projects with possible connection to Nearest one.
(A copy of the presentation is available on the project website, file: TRANSFER.ppt)

14:00 End of the kick-off meeting
At the end of the session, it was agreed that the next meeting will be hosted by FFCUL in Lisbon. Taking into consideration a number of constraints, the best period was identified in the third week of May (between 14th and 18th).

Minutes of the NEAREST Meeting

Lisbon, May 17-18, 2007

Venue
FFCUL (Fundação da Faculdade de Ciências da Universidade de Lisboa
Edifício C1, Piso 3
Lisbon (Portugal)

List of Participants

Participant name	acronym	17 May	18 May
Maria Ana Batipsta	FFCUL	X	X
Livia Moreira	FFCUL	X	X
Luis Matias	FFCUL	X	X
Pedro Terrinha	FFCUL	X	X
Cesar Andrade	FFCUL	X	X
Miguel Miranda	FFCUL	X	
Rachid Omira	FFCUL	X	X
Vania Lima	FFCUL		
Conceicao Freitas	FFCUL		
Alexandra oliveira	FFCUL		
Juan Jose Dañobeitia	CSIC	X	X
Mechita Schmidt-Aursch	AWI	X	X
Marc-André Gutscher	UBO	X	X
Paolo Favali	INGV	X	X
Claudio Vezzoli	INGV	X	X
Davide Embriaco	INGV	X	X
Hans W.Gerber	TFH	X	X
Wielfred Langner	TFH		
Fernando Carrilho	IM	X	X
Herculano Caetano	XISTOS	X	X
Azelarab El Mouraouah	CNRST	X	X
Abdelouahad Birouk	CNRST	X	X
Mohamad Hafid	CNRST	X	X
Mahamed Benammi	CNRST	X	
Arbi El Toto	CNRST		
Jose' Morales	UGR	X	X
Martin Benito	UGR		
Flor delis Mancilla	UGR	X	
Nevio Zitellini	ISMAR	X	X
Francesco Chierici	ISMAR	X	
Gabriela Carrara	ISMAR	X	X
Luca Pignagnoli	ISMAR	X	X
Maria Grazia Zucchini	ASTER	X	X

Day 1 - Thursday 17 May 2007

Opening session
After the welcome address from the hosting organisation (FFCUL), the meeting was opened by the project coordinator Mr. Zitellini. He provided an introduction 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, sharing results, discussing criticalities and identify necessary solutions for a good execution of the project in the next months.

WP's state of the art sessions
Per each technical workpackage (WP1 to WP9) an ad hoc session took place during the day. 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. An open discussion phase took place at the end of each WP session aimed at identifying the main critical tasks to be faced in the following period. These tasks were then discussed during the Working Group Meetings arranged on Friday 18th.
Most presentations were supported by Power point slides or PDF files, available on the project website (http://nearest.bo.ismar.cnr.it/).

Introductory speeches were provided by

WP1 Analysis -Tsunami source identification (Leader: FFCUL**)**
presentations made by Pedro Terrinha -FFCUL and Juanjo Donobetia-CSIC
Presentations available on the Nearest website : WP1_Terrinha.ppt

Task 1.1 Review of sources of tectonic origin

The activities for this period were:

i) mapping of the active tectonic structures in the Gulf of Cadiz

ii) characterization of the geomorphology of the Gulf of Cadiz.

The starting point for this package was: a good data set and good knowledge of the geology of the Gulf of Cadiz of most of the involved partners, based on interpretation of geophysical and geological dataset acquired mostly between 1992 and 2006.

In the case of the Portuguese group, although they had access to most of the data, a digital database was not organized and they started this from scratch at the starting of this project.

Task 1.2 Review of sources due to slope instabilities

The activities for this period were:

i) Identification of mass wasting-related morphologies in the Gulf of Cadiz based on SWIM swath-bathymetry and acoustic backscatter data using Fledermaus visualisation software.

ii) Preliminary characterization and classification of the landslides (dimensions, type of flow, etc) based on different morphostructural and depositional settings.

iii) Compilation and processing of sub-bottom profiler data (CHIRP and TOPAS) from cruises PARSIFAL2000, HITS2001, VOLTAIRE 2002, SWIM 2005 and SWIM 2006. Change from raw data to SEG-Y. File import to Kingdom Suite software. Data is also integrated with MCS and coring.

Task 1.3 Synthesis on tsunamigenic sources, characterisation and selection of the site for the deployment of a seafloor platform based on the GEOSTAR technology

Detailed interpretation of one of the potential GEOSTAR deployment sites, the Sagres plateau, has been done, using multi beam bathymetry and the available MCS lines. However, it must be kept in mind that for the sake of GEOSTAR station security, a detailed survey using deep towed side scan sonar and / or detailed sub-bottom profiler / high resolution seismics (e.g. CHIRP, TOPAS systems) is still needed.

Progress towards objectives

The work carried out so far was concentrated on the morphological interpretation and tectonic interpretation of the study area. Major progress has been done. A Geomorphologic Map and Map of Active tectonic structures have been produced and submitted to the Nearest partners in order to discuss them.

Progress was also made in what respects stratigraphic callibration of the MCS profiles. Seismic stratigraphic interpretation of part of multi-channel seismic lines SWIM06 was accomplished. Stratigraphic calibration of seismic units of the depositional sequence post-Horseshoe Chaotic Body (Early Pliocene-Holocene) on MCS profiles of IAM, ARRIFANO, BIGSETS and VOLTAIRE as well as the oil industry EXXON and CHALLENGER MCS lines of the Portuguese Margin is completed. This work was carried out as part of the PhD dissertation work of grantee Ana Cristina Roque.

Progress in what respects mass wasting-morphologies in the Gulf of Cadiz can be summarised as follows:

i) Identification of mass wasting-related morphologies in the Gulf of Cadiz based on SWIM, swath-bathymetry and acoustic backscatter data using Fledermaus visualisation software;

ii) Preliminary characterization and classification of the landslides (dimensions, type of flow, etc) based on different morphostructural and depositional settings;

iii) Compilation and processing of sub-bottom profiler data (CHIRP and TOPAS) from cruises PARSIFAL2000, HITS2001, VOLTAIRE 2002, SWIM 2005 and SWIM 2006. Change from raw data to SEG-Y. File import to Kingdom Suite software. Data is also integrated with MCS and coring.

Deviations from the project workprogrammme

The main deviation from the project programme was the failure of scheduling ship-time for the survey of the of the area to deploy the station. FFCUL got in contact with Professor Michael Ivanov from the State University of Moscow, Russia, with whom FFCUL team has prepared marine geology campaigns in the Gulf of Cadiz, every year since 1999, in the scope of TTR projects (Training Though Research, co-sponsored by UNESCO). The R/V Professor Logatchev, which has been used for this purpose had a technical problem and cannot perform the mission at least until September/October 2007, according to information received on 8th May.

Critical aspects to be taken in careful consideration:

- Needs of reflectivity data
- Campaign with Logatchev. Alternatives?

- Water depth for “catenaria”

WP2 Analysis: Tsunami source characterisation (Leader: CSIC)
presentations made by Juanjo Donobetia-CSIC
Presentations available on the Nearest website : WP2_Danobetia.ppt

Although WP2 was officially scheduled to start at month 7 (April 2007), activities related to this WP have already started, especially for what concerns applications to get shiptime and instruments (OBS) for the seismic cruise and time to perform PSDM at Geomar Processing Center.

- A one year-contract for Sara Martínez (SM) to start a PhD was requested in February. The idea is to extend this up to three years.
- SM started interpreting SWIM-2006 lines (SW08-SW16) across the Coral Patch Ridge and the active structures of the Seine Abyssal and Horseshoe Abyssal plains active structures. SM is also starting to get familiar with Claritas/ProMax processing software packages in order to process SWIM-2006 profiles and starting
- Rafael Bartolomé (RB) has started processing other SWIM-2006 profiles (SW01-SW07) crossing the Horseshoe fault to the accretionary wedge and across lineation 1. He will help SM with the processing issues.
- An application to get shiptime with Hesperides and funding from Spanish agencies (Complementary Action) to perform a 30 days seismic cruise was sent on August 2006. The application for shiptime includes a preliminary proposal for three refraction lines with ~25 OBS each.
- Given that the purchase of the PSDM software is delayed, an application to get two 3-weeks stays at the Processing Center of IFM-Geomar (1 for SM, 1 for RB) within EU-LSF to perform PSDM was sent last January.
- An application to get 20 IFM-Geomar OBS (60 deployments) within EU-LSF for the Nearest-Seis cruise was sent in May 7th.

Deviations from the project workprogrammme

The end of WP2 was scheduled at month 24, this is September 2008. Given that shiptime for the refraction cruise is allocated for October 2008 (13 months later than expected), it is necessary to extend WP2 to the end of the project (month 36) to accomplish the tasks committed. Deliverables D5 and D6 (cruise report and refraction modelling) should be delayed accordingly: Deliverable D5 (cruise report) should be delayed to month 27 instead of 14, and D6 (velocity models) to month 36 instead of 31.

Critical aspects to be taken in careful consideration:

- Large Scale Facilities: replace OBS by individual partner institutes
- Decide pre-stack lines

In particular :

- To select the MCS profiles that should be PSDM on the basis of their quality and scientific interest. We are now concentrating on newly acquired SWIM profiles. We have explored IAM profiles (ex. IAM-4) but they have been already PSDM (L. Pinheiro). They will be used to define refraction lines.
- Nothing has been decided yet regarding Rifano profiles. Who in ISMAR is going to process and PSDM them?
- The same for SISMAR profiles. Who in UBO is going to process and PSDM them?

- Once the application for Geomar OBS has failed, we have to decide alternatives. We need to have inventory of available OBS within NEAREST group (due on July 2007). CSIC hopes to have 15-20, will know the exact figures at the end of 2007.
- To identify alternatives to get other OBS if necessary (better to have as many as possible of the same type). Probably not necessary if delivery dates from the Spanish side are met. Alternatives in the case this does not work:
  a) Hiring GeoPro OBS costs ~80-100 euro/OBS/day.
  b) Offering one out of three refraction lines to Geomar to get their instruments for free.

WP3 Analysis Seismological monitoring (WP3 Leader: AWI)
presentations made by Mechita Schmidt-Aursch - AWI
Presentations available on the Nearest website : WP3_ Schmidt-Aursch.pdf

Task 3.1 Application for the broadband OBS

The application for the BB-OBS from AWI was successful.

The application for the ship time from ISMAR was successful

The planning of the cruise for the deployment of the OBS is almost finished, some open details to be discussed during the meeting

Task 3.2 Preparation of the cruises

The ordering of consumables, sub-contracted technicians and mobilisation/transportation in charge of AWI was mostly done. There is still a problem from AWI with ordering the insurance, this will be discussed during the Steering Committee Meeting the 18 May 2007.

Deviations from the project work programme

The beginning of Task 3.2 expected at month 9 was anticipated at month 6

Critical aspects to be taken in careful consideration:

- OBS team definition: 4 people out of 8 have been already identified
- Mapping of low slope instabilities and locations of OBS for considering seismicity, sea noise, problem of fishery. bathymetry, slope instabilities
- Equipment insurance
- Possibly more dense networks in study area
- Integration of land data
- Detailed Urania cruise planning

WP4 Analysis Tsunami signal detection (WP4 Leader: INGV)
presentations made by Paolo Favali –INGV; Hans Gerber – TFH, Davide Embriaco- INGV, Luca Pignagnoli –ISMAR
Presentations available on the Nearest website : WP4_Gerber.ppt
WP4_Embriaco.ppt
WP4_Pignanoli.ppt

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

The Task was completed and deliverable D10 was released even if with 2 months delay.

Task 4.2 Design and development of modifications (e.g., sensor supports of the frame); design and development of the software .

This task will be completed within the end of month 8 (May07) instead of month 9 with the release of D11 one month before the scheduled time.
Task 4.1 and 4.2 were developed with a reduced time shift (1 months) than the planned (3 months) in order to anticipate the end of task 4.2 and anticipate the start of the task 4.3. and task 4.4.

The GEOSTAR seafloor observatory has been enhanced in view of the long-term seafloor mission of the project. In particular, besides the inclusion of new sensors like a pressure gauge and two accelerometers, the electronics has been upgraded with a new electronic board in order to automatically process at seafloor pressure data in real-time. A "Tsunami Detection Algorithm" (TDA) was developed for this purpose and is now under testing using available public data and simulated tsunamis events. This algorithm is going to be integrated in the hardware of GEOSTAR. The seafloor observatory will be able to detect large local seismic events and tsunamis wave (pressure events) and will be able to send a warning message towards shore stations. An upgraded communication scheme was designed in order allow real-time communication from seafloor observatory to shore stations via acoustic and satellite links.

Deviations from the project workprogrammme
The ship time for the deployment of GEOSTAR and the experiment start off, initially estimated in month 12-13 (September-October '07), was anticipated by one month as communicated by the R/V Urania ship-owner to the project coordinator. The ship time will be reserved to NEAREST from 10 August to 10 September 2007.
The anticipation of the ship time has forced to review the schedule of the tasks. Accordingly task 4.1 and 4.2 were carried out almost in parallel and the beginning of task 4.3 was anticipated. Deliverable D10 was elaborated on the basis of feedbacks from task 4.2. Task 4.3 already started in order to be ended before the end of July (month 10 instead of month 12).

Critical aspects to be taken in careful consideration:

- E-mail address (Mail boxes) for data transmission
- Mooring position
- Define depth and geotechnical parametre of site of deployment
- Define threshold for seismic tsunami detection
- How to convey geostar data to IM
- Metereological data of geostar deployment area

WP5 Data integration / Integrated Tsunami Detection Network (WP5 Leader: UGR)
presentations made by Jose' Morales – UGR, Fernando Carrilho – IM,
Flor De Lis Mancilla -UGR
Presentations available on the Nearest website : WP5_Morales.ppt
WP5_Carrilho.ppt
WP5_Mancilla.ppt

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).

A prototype of a data collector is already running in Lisbon, at IM headquarters. It is based on SEISCOMP/SEEDLINK technology implemented on a Intel/Linux platform, and it is already concentrating data, in real-time, from several broad-band seismic stations operating in south Portugal Mainland (5), South west of Spain (1, SFS) and Morocco (1, RTC). The definitive hardware is being purchased, and by the end of the 8th month of the project, the data concentrator at Lisbon will be fully operating.

Task 5.2 Development of automatic procedures for rapid determination of seismic parameters and definition of thresholds for triggering the tsunami detection procedures .
The established prototype is ready to allow real-time access to authorized users, using SEEDLINK protocol, through Internet.

Task 5.3 Development of an effective tsunami detection methodology. Definition of thresholds for issuing different levels of alarm messages .
Some efforts have been taken in order to integrate data from a tide gauge located at Cascais (belonging to IGP), near Lisbon, on the western coast of Portugal Mainland. Data are being remotely accessed thought Internet, and a software tool is under preparation in order to convert data to miniSeed records that will be feed into the SEEDLINK server of the data collector

The UGR group has begun with the recovery of the available broad band waveforms in the Iberian Peninsula and Europe for earthquakes with magnitude M>4.0 in the Gulf of Cádiz area. The waveforms collection has been carry out thanks to the data exchange between partners of NEAREST as IM (Portuguese seismic network) and FFCUL (Lisbon University seismic network) and by using fast transfer tools of seismic waveforms from IRIS and ORFEUS which provide data from MEDNET and GEOFON stations in the area.

UGR group have, already, worked with seismograms of the last large earthquake Mw=6.0 happened in the region, February 12, 2007. This earthquake was the largest earthquake occurring in the study area after the large earthquake of February 1969, Mw=7.8. This earthquake has provided an excellent and successful opportunity to test the fast interchange of data between groups involved in the project. The results of the sources analysis of this earthquake has been submitted to Geophysical Research Letters journal (Source analysis of the February 12th 2007, Mw 6.0 Cape St. Vincent earthquake: Implications for the 1755 Lisbon earthquake by Daniel Stich, Flor de Lis Mancilla, Silvia Pondrelli and Jose Morales). These results have been provided to some interested NEAREST partners for the discussion and diffusion of them.
The CNRST group provided Affectation of IP physical address for a workstation to be used as a data collector for exchanging broad band seismic data (in a first step) in real time with the similar data collectors in Portugal and Spain. CNRST is working now on preparing one of its broad band stations to be linked and available by the Morroquian data centre.
The others data collectors will be contacted in few weeks to test the data transmission and protocols between the 3 data collectors.

CNRST has started the study of the possibilities for purchasing and installing, in the framework of NEAREST, a new broad band station, also it will available by Morroquian data collector. Some quotations are now in a study phase. The search of potential sites, for the installation of this broad band station, was made on the second week of April 2007.

Deviations from the project workprogrammme

Regarding task 5.3, it was planned to integrate tide gauge data from Lagos, but difficulties in accessing data remotely have made it impossible until now. The station owner and Nearest partners are looking into a technical solution. Also, the data from Cascais station is being acquired at 6 min rate, which is far from the minimum of 1 min. This problem is also being discussed with the station owner.

Critical aspects to be taken in careful consideration:

- IP access to data
- Tide data

WP6 Analysis - Paleotsunami and Paleoseismic records (WP6 Leader: CSIC)
presentations made by Cesar Andreade – FFCUL, Mohamad Hafid - CNRST,
Mohamed Benammi – CNRST
Presentations available on the Nearest website : WP6_Andreade.ppt
WP6_Hafid.ppt
WP6_Benammi.ppt

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

A specific Workshop entitled “Onshore Sedimentological Evidence of Tsunami Deposits”, was arranged by CMIMA-CSIC in Barcelona, on 19th January 2007. FFCUL and ISMAR took part to this workshop. The main objectives were:

- to obtain an overview of the work already done in tsunami deposits around the Gulf of Cadiz area by the different groups;
- To plan NEAREST task 6.1 fieldwork: selection of Sites for tsunami deposits (areas, dates and responsible);
- To discuss about methodology: instrumentation for coring, analytical procedures;
- To identify about possible obstacles, and to prospect about future scientific collaborations and forthcoming meetings.

Field work was planned for Portugal (Boca do Rio), Spain (Rio Piedras) and for Morocco (Massa Lagoon and Tarfaya (CSIC/UNED) and Moulay Boussahlem lagoon and other lagoons to the south (FFCUL in cooperation with El Jadida). Unfortunately no Moroccan participant could assist to this workshop.

Deviations from the project workprogramme,

Task 6.1:
Fieldtrips: The activity of systematic field exploration of selected tsunami deposit sites has been delayed due to the need of previous planning. The end of this activity has been re-scheduled towards the end of 2007. This adjustment should not conflict with the anticipated milestones and deliverables.

Task 6.2 / 6.3:

Marine cruise: News are still lacking about the NEAREST-CORE cruise from the Spanish shiptime operators. For sure, it will not occur on the RV Hesperides till at least 2009. CSIC

speculated if it could be planned on the RV Sarmiento de Gamboa for 2008 They reminded that the cruise was planned to acquire during 10-15 days new piston cores and multicores in channels draining to the abyssal plains to test for synchronicity with pre-existing cores.

Critical aspects to be taken in careful consideration:

- Uniform cartography for Tsunami location and characterization
- Improve collaboration among paleotsunami team
- Selection of core position of Eulalia Urania cruise
- Availability of DELSIS core data to Eulalia Garcia
- Opportunity to have small coring campaign with Hesperides the 11th of June 2007 from Cartagena

CSIC have applied to the Ministry of Education a survey related to the NEAREST-CORE (10-15 days). Althogh the request was approved, due to the lack of shiptime they are in a waiting list.
CSIC and ISMAR has investigated about the possibility of taking new cores during the URANIA cruise in the Gulf of Cadiz in 2007 for deployment of GEOSTAR and OBS. Depending of the number of cores finally obtained, the point above is more or less critical.

CSIC need to organize with UBO-Bordeaux / IUEM-Brest to know about the first results of their cores in order to compare/correlate with UTM-CSIC results on the SW Portuguese margin.

WP7 Analysis Modelling of tsunami impact in SW Portugal (WP7 Leader: FFCUL)
presentations made by Maria Ana Baptista and Rachid Omira - FFCUL
Presentations available on the Nearest website : WP7_Batipsta.ppt
WP6_Omira.ppt

Task 7.1 Collation of the New Bathymetric Data
GEBCO database
The GEBCO One Minute Grid was used as a starting point of DEM compilation. GEBCO grid was generated from GEBCO bathymetric contours and also includes land elevations from the Global Land One-km Base Elevation (GLOBE) database.

SWIM database
The compilation of the deep multibeam bathymetric data in the Gulf of Cadiz include: the 100 m grids acquired during several cruises carried out with partner involvement from 2000 to 2005. Additional data on specific localities (e.g. Moroccan mud volcanoes and Gorringe Bank, has been provided as well. Swath bathymetric data acquired since 1990 during transits of IFREMER vessels in the region (SISMER database) are also included. The multibeam systems used to survey the seafloor are Simrad EM3000 and EM1000 for shallow areas, and Simrad EM300, EM12S, EM120 and Reson Seabat 8150 for intermediate to deep waters.
The SWIM compilation includes data located in the area between 34ºN and 38ºN and between 12.5ºW and 5.5ºW. The DTM was interpolated from raw soundings to search for errors, such as the effect of tide (for shallow waters), variations in water column sound velocity profiles, motions of the vessel (roll, pitch and heave), and also to invalidate noisy external beams. Data were filtered. After filtering, bathymetric data is interpolated at nodes of a regular-spacing grid. SWIM compilation has a grid-size of 100 m.
The SWATH Bathymetric survey, between Sagres and Lagos, is now planned to start in May and be completed during the summer.

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.

For tsunami propagation across the ocean three different models have been used at CGUL: Linear shallow water (LSW) models, non linear NLSW code by Mader (2004) – SWAN, for the 1755.11.01 event (Baptista et al., 1998, 1999, 2003, 2006). Within the framework of TRANSFER the partners agreed to implement the COMCOT model (Liu et al.,1994), from Cornell University. The preliminary tests were performed using the 1969.02.28 tsunami event as a "benchmark" in order to calibrate the model.

The initial sea surface perturbation, due to a submarine earthquake, is assumed the same as the vertical displacement of the sea floor and for each earthquake the displacement of the sea floor is determined from the elastic dislocation theory (Mansinha & Smiley, 1971; Okada, 1985).

For each area, Algarve – Lagos to Boca do Rio and Morocco – Casablanca to Rabat 3 coupled grids were built with resolutions 0.008º, 0.002º and 0.0005º; the grid 0.008 º is common to both sites, including all the study area.

Tests of functions "Cold start" and "Hot Start" (COMCOT User Manual, 2006) were performed; this function is used when small grid regions of interest are located very far away from the source. The program estimates the time for the leading wave to travel between the source and the smaller grids and the corresponding Time Step. This Time Step is specified as the resuming time step for a later restart and simulation will start from the specified Time Step in the sub-grids. This procedure avoids unnecessary time consuming in the first stage of the simulation. The tests have shown that this function is working well.

Tsunami simulation along Rabat-Casablanca Morocco have been performed through numerical modelling with COMCOT code, from Cornell University.

The simulation domain covers the eastern part of the Atlantic Ocean offshore Morocco and the Gulf of Cadiz, from the most prone tsunami generation area. Three nested grid layers of different resolution (0.008º, 0.002º and 0.0005º) are incorporated to obtain a good description of bathymetric and topographic effects near shore. The simulations were performed in spherical coordinates and the nonlinear shallow water equations are used Tsunami modelling along Morocco Atlantic coast

Critical aspects to be taken in careful consideration:

- Topographic data of Moroccan coastal area
- Provide geometry of tsunami source for modelling

WP8 Analysis - Feasibility study and prototype for an EWS *(WP8 Leader: FFCUL)*
presentations made by Luis Matias –FFCUL and Herculano Caetano - Xistos
Presentations available on the Nearest website : WP8_Caetano.ppt

Task 8.1 Simulation of tsunami generation scenarios

The activities performed by Xistos and FFCUL during the 1st semester allowed to establish the version of a simulator allowing the visualization of the generation of a tsunami on the target zone that was chosen as the test pilot area for the NEAREST project. Such version of the simulator is able to:

- integrate external data on the tsunami,
- evaluate the spatial impact of the tsunami and its consequences on the population
- to visualise the emergency and relief actions and to model their operational strategies.

In particular the following tasks have been accomplished:

1. Initialisation of the NEAREST-Tsunami simulator which is already able to:
   a. Simulate the generation and consequences of an earthquake in the area;
   b. Associate one tsunami to the earthquake
   c. Estimate the most significant physical characteristics of the tsunami
   d. Visualize the consequences of the tsunami on one zone or over a set of zones that was selected based on the available cartographic information.
2. Initialising the modelling of the operational organizations for emergency and relief that are due to intervene in the case of a disaster;
3. Initialising the modelling of the tools required to implement the operational strategies that these organizations generate;
4. Initialised the general modelling of these organizations.

Summary
Critical aspects to be taken in careful consideration:

- The need to send to IM the geostar data in order to guarantee the real time monitoring of the submarine station and the buoy.
- Check the improvement Tide gauges

WP9 Analysis – Circulation of project information to end users *(WP9 Leader: ISMAR)*
presentations made by Nevio Zitellini and Gabriela Carrara - ISMAR
Presentations available on the Nearest website : WP9_Zitellini.ppt

Task 9.1 Project communication
A project communication image was elaborated, with a brochure describing the project content and partners and containing the logo choosen by all partners during the Kick Off Meeting. After the final suggestions, given by the Nearest partners, this first results will be used and distributed during meetings and events.

Task 9.2 Project web site

The project web site was realized and is hosted by the ISMAR computer centre of Bologna.
The site, named “nearest.bo.ismar.cnr.it”, contains basic informations and status of the project, a description of the partners and related links, documents and reports on project meetings, news.
The web site is divided in two areas with different characteristics:

- a **public** section, accessible to every users,

and

- a **private** section fully open to all the project partners with the aim to assure co-ordination and retrieval of project information.

The next goal will be the creation of a list of links to web sites of interest and a section where the results of the project, tailored to inform non-specialists and the general public, will be downloadable.

Task 9.3 Contact database

All partners was invited to contribute to the setting-up of a common database of contact persons, communities, institutions and authorities at both local and national levels.

Other activities

- A relational database of geological and geophysical data (i.e. sub-bottom profiler segy data, MCS segy data, bathymetric data, navigation data etc.) was developed. The next step will be to put this database accessible on the web site.
- An ftp site (ftp.ismar.bo.cnr.it) was realized. This ftp site is accessible by login and password in order to permit a sure exchange of big amount of geological/geophysical data among the project partners. The FTP site is also accessible by the Nearest web site. The login and the password were communicated to all nearest partners during the meeting.
- Urania cruise planning (permissions request to the Portoguese and Maroccan Authorities, organizing port calls, embarking people and instruments, etc.)

Critical aspects to be taken in careful consideration:

- Contact database
- Check the right logo for each partner to put on the web site
- Complete the description of single Institute on web
- Brochure

Day 2 - Friday 18 May 2007

Steering Committee Meeting

The first part of the morning was addressed to the NEAREST Steering Committee meeting, involving only the responsible members (or their delegates) 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.

Working groups arrangement
Following the methodology adopted during the kick-off meting, Mr. Zitellini summarized the main critical outputs stemming from the discussion at workpackage (WP) level held the day before. For each set of major problems pointed out during the WP analyses, a Working Group was established to identify the most proper strategies to cope with each present or potential difficulty during the project execution. Eventually it was decided to arrange 3 Working groups. For each Working group a coordinator and a rapporteur have been identified, moreover the complete list of participants was agreed as well.

Working Groups sessions
3 parallel sessions were arranged
WG1 took into considerations main critical issues relate to WPs 1-2-3
WG2 took into considerations main critical issues relate to WPs 4-5-8
WG3 took into considerations main critical issues relate to WPs 6-7

Each WG discussed according to a common format, taking into consideration in particular technical planning for the next 6 months.

The output of the 3 working sessions, presented by each rapporteur to the general assembly in the final part of the meeting, are reported hereinafter:

Working group	**WG 1**
Focus on	WP1, WP2, WP3
Participating organisations	**Participant names**
CNR-ISMAR	Gabriela Carrara, Nevio Zitellini
FFCUL	Pedro Terrinha, Vasco Valadares, Luis Matias, Luis Mendes
CSIC	Juanjo Danobeitia,
AWI	Mechita Schmidt-Aursch
UBO	Marc Andre Gutscher
INGV	Paolo Favali, Claudio Viezzoli
TFH	/
UGR	Jose Morales Macilla Flor, Benito Martin
IM	/
CNRST	Azelarab El Mouraouah, Birouk Abdelouahad,Hafid Mohamed
XISTOS	/
WG facilitator	Juanjo Dañobeitia
WG rapporteur	Pedro Terrihna

Working group	**WG 1**
WG Report	
Problems analysed	**WP1** 1) Need reflectivity data Cadisar1 and 2 Doug Masson Reson Explora (Vasco Valadares) 2) Cruise with Logatchev. Alternatives? (Juanjo Dañobeitia) 3) Water depth for the mooring (solved) **WP2** 4) Large Scale Facilities: replace OBS by individual partner institutes (solved) 5) Decide pre-stack lines (Nevio Zitellini) **WP3** 6) OBS team: 4 people out of 8 (solved) 7) Mapping of low slope instabilities and locations of OBS for seismicity (Pedro Terrinha and Eulalia Gracia) 8) Possibly more dense networks in study area (unnecessary) 9) Integration of land data (Jose Morales) 10) Detailed Urania cruise planning (solved)
Solving methods identified	An important discussion takes place to decide about the preferred sites to deploy Geostar. The pre-selected sites are the Marques de Pombal (average depth 2500 m) or Sagres Plain (average depth 3200 m). Different criteria are being discussed among others. **WP1** 1) Need reflectivity data Cadisar1 and 2 Doug Masson Reson Explora : Vasco Valadares(FFCUL) will get in touch with Marc Andre Gutscher (UBO). We decided for the Sagres Plateau. FFCUL have to send immediadely to Juanjo Donobetia(CSIC) coordinates of survey area for sub-bottom profiles. 2) Cruise with Logatchev. Alternatives?: We must find one before the deployment of geostar 3) Water depth for the mooring: 3-3.200 m **WP2** 4) Large Scale Facilities: replace OBS by individual partner institutes: We are not using the Geomar OBSs and Nevio Zitellini will update the list of OBS available to the team: CSIC 15-20 OBS by the end of 2007 (IFREMER 17 ?) Lisbon 10 UBO 7 5) Decide pre-stack lines Nevio Zitellini will check what line are already pre-stacked. The lines to be pre-stacked are: AR 7, AR10,GC1, GC2, SISMAR 13

Working group	WG 1
	WP3 6) OBS team: 4 people out of 8: Concerning the request of AWI to have 4 additional persons it appears there is no major concerning for that because CSIC will send 3 people, MariaAna Batipsta(FFCUL) will send a PhD student Rachid Omira, Hafid Mohamed(CNRST) will be on board and ISMAR will send at least 3 people, INGV will send 2 or 3 people. Nevio Zitellini will be the chief scientist during the cruise. 7) Mapping of low slope instabilities and locations of OBS for seismicity: Pedro Terrinha (FFCUL) will send the swim compilation map, the mud volcano map. Mechita Schmidt-Aursch (AWI) will relocate the OBS locations considering the need to have 2 OBS on the western portion of the accretionary prism and one station on the Seine plain. 8) Possible more dense networks in study area: This has been discussed and it has been decided to not proceed in this direction 9) Integration of land data: Jose Morales(UGR) is in charge to contact the team working on land to gain to coordinate the effort 10) Detailed Urania cruise planning: It has been decided to have the three port call in Faro. The Urania will leave Naples on August 10 2007, Here, the GEOSTAR like station will be loaded and the Modus. The first stop will be in Faro on August 15/16 to embark the rest of the team. The leg will start possibly on the same day and will terminate on August 23 2007. If there will be time during the first leg we will perform also coring. The second lag will start on August 23 2007/early morning of 24 and will end on Faro on September 4/5 2007. During the second leg OBS deployment will be carried out plus coring and swath bathymetry Personnel for the first leg: TFH 4 people INGV 7 people ISMAR 3 people CSIC ? Sedimentologist for coring ? Nevio will check Pedro Terrinha ?

Working group	**WG2**
Focus on	WP4, WP5,WP8
Participating organisations	**Participant names**
CNR-ISMAR	Francesco Chierici, Luca Pignagnoli
FFCUL	Miguel Miranda
CSIC	/
AWI	
UBO	/
INGV	Paolo Favali, Davide Embriaco, Claudio Viezzoli
TFH	Hans Gerber
UGR	Jose Morales
IM	Fernando Carrilho
CNRST	Birouk Abdelouahad
XISTOS	Herculano Caetano
WG facilitator	P.Favali
WG rapporteur	D.Embriaco
WG Report	
Problems analysed	WP4: • E-mail address (Mail boxes) for data transmission • Mooring position: (discussed within WG1) • Define depth and geotechnical parameter of site of deployment • Define threshold for seismic and pressure tsunami detection • How to convey geostar data to IM • Metereological data of geostar deployment area (Hans) WP5 • IP access to data • Tide data WP8 • The need to send to IM the geostar data • Check the improvement Tide gauges
Solving methods identified	Discussion on the critical points identified in plenary session. • Mooring position: (discussed within WG1): The site in which GEOSTAR will be deployed is the B (Sagres) • Define depth and geotechnical parameter of site of deployment CSIC will perform a survey to detect possible instability in the selected site in June (it was discussed and decided in WG1) • Metereological data of GEOSTAR deployment area (Hans Gerber) : TFH needs average period of waves and amplitude and spectrum, weather and meteo data; wind and surface data will be provided by IM. No information on current profile is now available. Miguel Miranda (FFCUL) will provide the contact person which will supply oceanographic data information and tide profile regarding the selected site.

Working group	WG2
	• Define threshold for seismic and pressure tsunami detection: IM will give some information to INGV (seismic wave form of some strong events) and parameter for STA/LTA triggering that is actually used in the coastal seismic network. INGV will analyze those data and select a useful trigger for the seismic events of interest (local and with magnitude greater than around 4). Only the threshold parameter can be changed during the GEOSTAR mission. Pressure threshold: at the beginning of the mission a threshold of 3cm will be used. • E-mail address (Mail boxes) for data transmission: A message will be sent to all partners in the following days asking them to indicate the e-mail boxes to which the messages from GEOSTAR must be delivered. A mailing list will be so defined and all messages coming from the buoy and GEOSTAR will be delivered to this mailing list. • How to convey GEOSTAR data to IM For the beginning of the mission e-mails will be send containing all messages coming from GEOSTAR and the buoy (four messages a day). During an event more e-mails will be sent (approx. one message every 10 minutes containing pressure seafloor data). Hopefully a direct link between INGV and IM will be projected and implemented for the starting time of the mission. • Tide data IM and FFCUL will try to collect data from tide gauges in the Portuguese coast, particularly in Lagos, in the data collector.
Checking points	All marine and meteo data needed by TFH must be available within three weeks, sooner the data are availa
Responsible/s	INGV (D.Embriaco) collect and define the e-mailing list IM (Fernando Carrilho) and INGV (G.Marinaro) are responsible for IM-INGV data integration INGV (L.Beranzoli) defines the seismic threshold after analizing IM data. IM (Fernando Carrilho) will provided wind and surface data to TFH IM (Fernando Carrilho) and FFCUL (Luis Matias) are responsible for tide gauges data collection. TFH (Hans Gerber) will check hydro-dynamical behaviour of modus after IM data are available
SC-decision	/
AB involvement	/

Working group	**WG3**
Focus on	WP6, WP7
Participating organisations	**Participant names**
CNR-ISMAR	
FFCUL	Maria Ana Baptista - Cesar Andrade
CSIC	
AWI	
UBO	
INGV	
TFH	
UGR	
IM	
CNRST	Mohamad Hafid , Mohamed Benammi
XISTOS	
WG facilitator	Maria Ana Baptista
WG rapporteur	Maria Ana Baptista
WG Report	
Problems analysed	WP6 • Uniform cartography of tsunami location and characterization; • Improve collaboration among paleotsunami team; • Selection of core position of Eulalia's cruise; • Availability of the DELSIS coredata to Eulalia; • Opportunity to have small coring campaign in the "Hesperides" 11th June from Cartagena. WP7 • Detailed topographic data and DTM models of (selected) Moroccan coastal area; • To provide geometry of tsunami source for modelling.
Solving methods identified	Participants from FFCUL + CNRST + CSIC send to Eulalia Gracia (CSIC) documentary and other information to build a "data base" in a common format. First joint field work in Moroccan coast arranged for 23-30 May 2007 and further joint work (scope, scale) to agree following this activity. Final decision re-directed to Eulalia. MA Baptista will prepare a letter for Nevio to send to the Directeur of CNRST explaining the need for data in the scope of the project for the coastal regions of port of Casablanca Mosque Hassan II (mentioning CNRST and other Moroccan researchers involvement) and asking for access to data on hydrography and topography of the selected coastal zones - CNRST to undertake further steps at adequate authorities (Centre national de teledetection, marine, direction de la topographie et conservation).
Checking	

Working group	**WG3**
points	
Responsible/s	23-30 May 07 Field trip participants: FFCUL Cesar Andrade, Conceicao Freitas, CNRST Mohamad Hafid, Abdelouahed Birouk, Azelarab El Mouraouah and Mohamed Benammi