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)

PERIODIC MANAGEMENT REPORT

Period covered from 1/10/2006 to 30/09/2007 Date of preparation 10/12/2007

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

Project coordinator name: Nevio Zitellini
Project coordinator organisation name: ISMAR

1. Justification of resources

Contractor 1 ISMAR BO (coordinator)

Activities performed

WP1 This work-package:" Identification and geological characterization of the potential large tsunami sources both of tectonic origin and gravity origin in the Gulf of Cadiz and in SW Portugal by the review of available data; selection of a site of deployment of the seafloor platform" is characterized by the largest men/month allocation for the first year of activity of Nearest. This happened because most of WP package activity had to be completed before the deployment of the abyssal station, at month 10-11. In addition, the data set had to be organized in a sharable way to make it available to whole partners and had to be analysed and completely re-interpreted. The mayor contribution of ISMAR was on Task 1 even if important activity was performed in Task 2 and Task 3.

Task 1:

- quality control of high resolution chirp data acquired during campaign Bigset98, Voltaire2002, SWIM2004 and conversion in a standard format
- quality control and, when needed, reprocessing of Multi-Channel seismic data AR92, Bigests98, Volatire2002 along with magnetic data and conversion in a standard format
- quality control of swath bathymetric data set SWIM2005 acquired in the Seine Plain.
- construction of a relational database of the sensible geological and geophysical data (i.e. sub-bottom profiler segy data, MCS segy data, bathymetric data, navigation data etc.). This database was regularly up dated during the project.
- Exchange of these data set with the partners throughout an ftp site (ftp.ismar.bo.cnr.it), accessible by login and password in order to permit a secure exchange of big amount of geological/geophysical data among the project partners. The FTP site has a facilitated access from the Nearest web site when a unix platform is used locally by the partners.
- Interpretation of the whole geophysical data set multi-channel seismic, high resolution seismic in conjunction with the high resolution morpho-bathymetric data derived by the SWIM Compilation (this last prepared by CSIC). It must be stressed that the amount of data were huge and they were never interpreted using at the same time the whole data set.. Special focus was devoted to present-day active faults. This work was done in tight collaboration with the FFCUL, CSIC and UBO team. For that reason several meeting were done by the project coordinator to check the progress in the interpretation of the data.

Task 2:

- Creation of a data base of the sampling stations performed in the area by the different institution in the last 15 years.
- Description of the cores collected in the area by ISMAR and their sampling for age dating. Some of the cores collected by ISMAR were in fact not yet studied.

Task 3:

- Selection of the best Site for the abyssal station deployment. This was done in collaboration with the other partners
- Request of permits from the Portuguese legal authorities for the abyssal station and buoy installation. Request to release the “notice to mariners” for the floating buoy
- High resolution single channel seismic survey and sampling of the sea bottom for the site characterization before the deployment and installation on the sea floor of the abyssal station. This survey was carried on board of R/V Urania.

WP2 ISMAR was in charge to recognize and locate on the multi-channel seismic lines the deep decollement surfaces. These tectonic structure the key to understand deformation history of the area and were multiple rupture area may occur during an earthquake. These structure are very deep and their location has to be considered for the planning of the wide angle seismic refraction experiment

WP3 ISMAR has contributed to the WP3 with the planning and the management of the cruise Urania 2007 (second leg, see cruise report). This work involved the permissions request to the Portoguese and Maroccan Authorities to place the OBSs stations in their waters, the contact with the local agent for supporting in logistics and mob/demob of the instruments, the organization of the port calls, the management and the supervision of embarking people operations and arrangement and other minor activities related to the deployment of the seismometers. Moreover ISMAR team had the responsibility of the cruise itself.

WP 4 ISMAR was involved in all the tasks foreseen by the project. The ISMAR team was in charge of the definition of the detection algorithm for the tsunamometer, the triggering threshold, the messages and in particular have designed two different tsunami detection algorithms and the software design. In addition the ISMAR team has contributed to the WP4 with the planning and the management of the cruise Urania 2007 for the deploymet of the abyssal station (first leg, see cruise report). This work involved the permissions request to the Portoguese Authorities, the contact with the local agent for supporting in logistics, the organization of the port calls, the management and the supervision of embarking people and instruments and other minor activities. Moreover ISMAR people had the responsibility of the cruise itself.

WP5 ISMAR collaborated to the development of basic elements of TEWS: in particular they developed a tsunami detector and a tsunami detection algorithm. They devised a method to establish the warning threshold for water column pressure signals and for seismic magnitude warning threshold. ISMAR also are working the development a 2-D modelling for tsunami generation that takes into account the effect of water compressibility and the sea floor sediments in the tsunami generation processes.

WP 6 ISMAR team opened, described and sampled for age dating the core BIGSET 3 (36 47.00 Lat; 8 36.99 Long; 477m water depth) collected during scientific cruise BIGSETS98. The sedimentary sequence was analysed searching for tsunami records. X- ray, magnetic susceptibility, 210 Pb analysis was carried out as well as micro-paleontological analyses. The results are described in the WP6 report. ISMAR participated to meeting to define the area to be sampled for paleotsumani record on land as well as for field trip planning. ISMAR participated to the field trip at Boca do Rio (Algarve) and did the sampling for magnetic measuremets.. The target of the sampling was to collect oriented sediments to reconstruct the paleomagnetic direction. All the analysis on this samples were performed at ISMAR of Bologna (Italy) and .he results are described in the WP6 report. ISMAR team carried out the core sampling during the Urania 2007 expedition.

WP7 ISMAR carried out a small multibeam survey to extend southward the high-resolution investigation done by FFCUL along the coast of Algarve.

WP8 ISMAR analyzed true sea floor pressure data (DART courtesy) to develop different tsunami detection algorithms and to evaluate statistically the threshold value to be used in TEWS: the effectiveness of the detection of tsunami signals for an early time alert of civil protection is also in process of evaluation.

WP9 ISMAR coordinated the project communications, elaborated and produced the NEAREST brochure, implemented and maintained the project web site. Moreover ISMAR started the collection of information to built the contact data base. ISMAR coordinated the promotion of the project and the dissemination of the first results achieved throughout different media.

WP10 ISMAR assured the respect of the NEAREST work plan with regular contact with all partners and careful monitoring of intermediary results achieved and time schedule respect proposing and/or accepting variations when necessary. ISMAR coordinated all activities for the elaboration and validation of the consortium agreement and for the establishment of the NEARST steering committee and advisory board. ISMAR take care of the technical and management reporting carrying out also project progress assessment at six-month level. ISMAR coordinated scientific reporting and data dissemination and managed project web pages. Finally ISMAR organized project meeting and workshops.

Costs occurred

Personnel costs:
The costs refer to ISMAR permanent staff involved in the project execution. Moreover the following scientists has been recruited for the project:

- WP1 and WP 9 One young researcher (Gabriela Carrara) working full time form Oct. 6, 2006 for the geological/geophysical data base and for the building and maintaining the NEAREST web site.

- WP4-WP5 One post-doc researcher (Luca Pignagnoli) working full time from Oct.15, 2006 for the development of algorithms for the tsunami detection

Travelling and Subsistence:
Travelling costs are little bit higher than expected. The difference is mainly due to the intense coordination activity at the beginning of the project, the participation to several scientific and technical meetings, the organization and realization of the Urania cruise for the deployment of the abyssal observatory and the OBSs :

- the participation of some people of the ISMAR Team (N. Zitellini, F. Chierici and L.Pignagnoli) to various international scientific meeting (SAFE, ESONET, IUGG, FIST, Geoitalia)
- The coordination work performed by the project coordinator N. Zitellini in Lisbon and Barcelona at the beginning of 2007.
- The participation to several work meetings in Venezia, La Spezia and Roma by L. Pignagnoli and F. Chierici for the aims of the tasks foreseen by the WP4.
- The participation of L. Vigliotti to the WP6 meeting in Barcellona and to the field work in Boca do Rio (Portugal) performed inside the WP6.
- The participation of Nearest ISMAR Team (N. Zitellini, G. Carrara, L. Pignagnoli, F. Chierici and two PhD students L. Angeletti and F. D'Oriano) to the NEAREST 2007 scientific cruise on board of the R/V Urania-CNR.
- The costs for the Moroccan observer that was on board of the Urania cruise (august 2007).

Consumable:
The main consumable costs are due to the integration of the abyssal station equipment and the buoy sensors, the high performance personal computer for the numerical computation and all the costs for mob and de-mob of the NEAREST 2007 Urania cruise:
- Wind velocity transducer, Pressure transducer, compass filter
- Thermo-Hygrometric sensor and Solar protection screen
- Equipment transportation from Bologna to Naples and return
- Port call expenses related to the R/V Urania expedition in Gulf of Cadiz
- Port call expenses related to the R/V Urania in Naples July, 2007

Other costs:
Purchase of components of the abyssal station

No major deviations occurred.

Contractor 2 FFCUL

Activities performed

WP 1 Tsunami source identification activity

- creation of a database in a *Landmark* environment containing all the Multi channel seismic reflection lines of the Gulf of Cadiz and SW Portuguese Margin: oil industry MCS from 1974, SISMAR, ARRIFANO, BIGSETS, VOLTAIRE, SWIM2006, IAM.
- interpretation of the MCS database.
- interpretation of the multi-beam SWIM bathymetry and reflectivity datasets;
- seismostratigraphic callibration of the MCS lines using the five wells from the Algarve Basin (South Portugal) and the DSDP 120 and DSDP135.
- Inspection of TGS-NOPEC MCS lines at DGEP Ministry of Industry, Portugal) to help localization of site for deployment of GEOSTAR.

WP6 Field work

- Boca do Rio (Algarve, Portugal), 19 - 22 March 2007, organized by FFCUL, involved researchers from FFCUL, ISMAR and CSIC. Work consisted in the opening of three exploration trenches, record of the stratigraphy, box-core sampling of exposed walls for sedimentological and paleoecological studies and dating, coring of the underlying sediment, high-resolution sampling of tsunami and framing sediment for magnetic studies and 210Pb and 137Cs chronologies; additional sampling of present day analogues.
- Sagres – Boca do Rio field survey (Algarve), 2 – 4 July 2007, organized and executed by FFCUL (Cegul), for surveying and sampling of the coastal lowlands of Barranco, Ingrina, Zavial, Furnas and Figueira, to search for sedimentological record of past tsunamis, including boulde deposits. Samples and field measurements undertaken.
- Boca do Rio field survey (Algarve, Portugal), 16 – 18 July 2007, organized and executed by FFCUL, for coring and sampling the Boca do Rio floodplain to characterize the spatial distribution of thickness and horizontal extension of the 1755 tsunami deposit. The subsurface north and northeast boundaries of the tsunami layer was tentatively constrained to evaluate the minimum horizontal penetration distance of that inundation.
- Boca do Rio – Alvor field survey (Algarve, Portugal), 2 – 4 August 2007, organized and executed by FFCUL for surveying and sampling the coastal lowlands of

Cabanas Velhas, Luz, Bensafrim estuary (Lagos), Meia Praia, S. Roque and part of the Alvor region.

Office/Lab work

- Compilation, editing and construction of a documentary database on tsunamigenic activity upon the Algarve coast of Portugal, (completed).
- Overview and interpretation of the geology and geomorphology of the Algarve coastal fringe, focused on features favouring/constraining tsunamigenic inundation, completed. Detailed geomorphological representation of each surveyed/sampled site (under construction).
- Compilation of published material on sedimentary deposits associated with the tsunami in the Algarve, (completed).
- Selection of about 15 field sites offering potential for preservation of tsunami-deposited sediments, elected for exploration field work foreseen in task 6.2.
- Field and laboratory descriptions of cores matched and corrected. Laboratory work on the sediment cores started, sedimentological processing of samples in due course.
- Size, volume and mass distribution of boulders was studied to test consistency of cross shore variation in these properties and to assess tsunami versus storm emplacement, with no conclusive results (yet).
- Reconstruction of the 18th century paleosurface at BDR and of the amount of erosion due to tsunami flooding initiated

WP 7 Collation of the new Bathymetric Data

- Collation of GEBCO and SWIM databases.
- Acquisition of new data through multibeam survey
- Production of DEM for the study areas in South Portugal an Rabat-Casablanca in Morocco
- Multibeam survey of the shallow area between Sagres and Portimão

Implementation of the numerical model

- Comparison of synthetic tsunamis produced by SWAN model and COMCOT.
- The preliminary tests were performed using 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.
- Wave heights computed with COMCOT were checked against existing mareographic data.
- Preliminary MWH (maximum wave height) maps for test areas.
- Preliminary inundation computations for Boca do Rio and Casablanca
- Field and Photographic survey of Casablanca building stock
- Building classification for tsunami impact.

Model Validation

- Benchmark testing according to TRANSFER EU, project. The model gives reasonable results for benchmarks #1 and #2.

WP 8 Development of the methodology to be applied to generate synthetic data streams for seismic and sea-level sensors. These will be applied to test the Tsunami Warning System implemented in WP5. FFCUL coordinated with Xistos the development of the simulator for Civil Protection authorities, namely providing Xistos with the data regarding the tsunami generation and tsunami inundation.

Costs occurred

Personnel costs:

WP1 2 young researcher (Ana Cristina Roque e Henrique Duarte), working in full time, and dedicated to field, lab and office activities of marine geology study of the depositional record of tsunamis

WP6 1 young researcher (Maria Alexandra Oliveira), working in full time from 1/02/2007 onwards, and dedicated to field, lab and office activities of sedimentological and geomorphological study of the depositional record of past tsunamis;

WP7 1 post-doc researcher, working in full time from 1/02/2007, dedicated to the implementation of a numerical model for Tsunami propagation.

Travels and subsistence:

Participation of the FFCUL staff to:

- Kick-off meeting - Bologna, 9 -11 October 2006;
- Workshop "Onshore Sedimentological Evidence of Tsunami Deposits" - Barcelona, 19 January 2007;
- Interim first year project meeting in Lisboa, 17-18 May 2007
- meeting with project partners in Faro (PT) on 15/16 August and 24 August during port call over R/V URANIA
- Building Survey of Casablanca, 13th – 30th April 2007
- WP 1 project meeting in Barcelona, 20th – 24th July 2007
- Seminar on Early warning systems – Albufeira, Portugal 15th – 18th July 2007

Consumables
- Safety equipment materials used or worn out due to lab or field work
- Nautical and topographic maps for DEM production
- acquisition of material needed for the installation of seismic stations for the project

Other costs
a) Compilation of bathymetry plus shallow bathymetry survey 60000€,
b) Nearest Lisbon meeting organization
c) announcements of the NEAREST scholarship

Subcontracting
Costs for tide-gauge upgrade

Major deviations

Major underspending occurred to the budget of the first year is related to subcontracting, once there was a delay in the work concerning the development of a tide-gauge upgrade. The budget allocated for this task will be used during the 2nd reporting period.
In "Other Costs" cost category also occurred some budget deviations, due to the fact that the preparation of the high resolution bathymetric survey is not finished yet. The work will be finished during the project 2nd year, which means that the costs allocated for the 1st year will be incurred in the 2nd reporting period.

Regarding the "Personnel" cost category there is also a small deviation from the budget, because most fellowships started only in February 2207, but FFCUL will catch up in the 2nd year.
Costs reported under "Travel" and "Consumables" cost categories are also below the initial budget for the 1st year, due to some delays in the work performance and particularly because the cruise originally planned in WP1 on board of R/V Professor Logatchev to carry out high resolution deep towed side scan sonar (MAK 30-100 MHz) was cancelled

In what concerns Person-months (PMs) there are two major deviations to the budget, which are related to WP6 and WP8.
The effort of the FFCUL staff involved in WP6 was higher than what has been initially allocated, particularly because of a higher involvement of the institution's permanent staff.
In WP8, the PMs reported are under the figures initially predicted due to some delays in the work performance and also because the hiring of a student was postponed. In any case this situation should be solved during the next reporting period.

Concerning the "management activity", this was entirely performed by the FFCUL's permanent staff.

Contractor 3 CSIC

Activities performed

WP 1 Compilation map of the marine geological and geophysical data recently acquired in the Gulf of Cadiz. It includes a) the bathymetric SWIM compilation and backscatter; b) sub-bottom profiler data (CHIRP and TOPAS); c) Multichannel seismic data from integrated in Kingdom Suite software; d) and marine sediment cores obtained in the Gulf of Cadiz since 1998. All data are integrated in the visualization software IVS-Fledermaus.

- 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.
- Characterization and classification of the submarine mass wasting features of the Gulf of Cadiz have been recognized, analyzed and mapped (dimensions, type of flow, etc) based on different morphostructural and depositional settings. Five main landslides have been studied in detail: a) The Slope canyons, b) Portimao Bank slide, c) The North Gorringe rock avalanche, d) The South Gorringe slides, and e) the Marques de Pombal landslides and debris flow.
- Summarization of the main parameters of each of the relevant landslides from the Gulf of Cadiz in a Table containing information of water depth range, headscarp (height, width, and length), total surface affected, surface of the deposit, slope gradient (source area and depositional area), run-out distance, volume and estimated age.
- Most of the observed mass transport features are likely to be triggered by seismic activity, persistent in the area. Turbidites sampled at the MPF area are related to large magnitude EQs in the Gulf of Cadiz, such as AD 1755 and BC 218, which generated destructive tsunamis.

WP 2 2 presentations made by CSIC at international meetings regarding WP2 activities.

- A graduate student (Sara Martínez) has been hired to perform a PhD thesis on WP2-related activities under supervision of Eulàlia Gràcia and Valentí Sallarès (CSIC).
- 16 MCS profiles corresponding to SWIM-06 cruise have been pre-processed by Sara Martinez and Rafael Bartolome. 4 of these profiles have been selected to perform Pre-stack depth migration (PSDM).
- Two 3-weeks stays at the Processing Center of IFM-Geomar (1 for SM, 1 for RB) to perform PSDM within EU-LSF have been scheduled for Fall 2007.
- An application to get shiptime with R/V Hesperides and funding from Spanish agencies to acquire three refraction lines with ~25 OBS each has been granted. The cruise (Nearest -Seis) will start in Cadiz on October 16th and will end in Malaga on November 2nd.
- A graduate student (Sergi Ventosa) had a Nearest-funded grant during which he has developed signal processing filters that will be used to process Nearest-Seis data. The instrumentation to be used is mainly Ocean Bottom Seismometers/Hydrophones (OBS/H): 24 OBS will be provided by UBO+ Ifremer and 17 by UTM-CSIC.
- The possibility of renting additional OBS has been explored.

WP 3

Zoraida Rosselló participated in the R/V Urania cruise to deploy the 24 BB OBS network in the Gulf of Cadiz in August-September 2007.

- Josep Gallart, leader of TopoIberia group, which is deploying a BB network within the Iberian Peninsula has been contacted for data sharing and collaboration.
- Sara Martinez participated in the MVSeis cruise aboard R/V L'Atalante devoted to MCS acquisition in the study region. The BB OBS recordings of the airgun shots will be used to calibrate earthquake re-location precision.

WP 6

Organization of the Workshop "Onshore Sedimentological Evidence of Tsunami Deposits", CMIMA-CSIC, Barcelona, 19th January 2007. The main objectives were: Overview / to know the work already done in tsunami deposits around the Gulf of Cadiz area by the different groups; to plan NEAREST fieldwork, to select sites for tsunami deposits; to discuss about methodology; to identify possible obstacles and to prospect future scientific collaborations.

- "XXIV International Union of Geodesy and Geophysics (IUGG) General Assembly" Perugia (Italy), 8-13 July 2007. Invited Talk to E. Gràcia (CSIC) to present the main results in the frame of the NEAREST project on "Active faulting and Holocene paleoseismic record offshore Portugal, Southwest Iberian Margin" in a session on "New techniques on paleoseismology".
- A graduate student (Zoraida Rosselló) has been hired for 18 months (since 15th May 2007) to contribute to WP6 in UTM-CSIC. A young researcher specialist in marine paleoenvironments and tsunami deposits (Ana Cubero), has been hired for 12 months (since September 2007) at the Museo Nacional de Ciencias Naturales (MNCN-CSIC) dedicated to Task 6.1.
- Rio Piedras (Huelva) fieldtrip, 9 - 13 July 2007, organized and executed by UNED and CSIC (MNCN). The main objective was to obtain a continuous core in the Rio Piedras marshes looking for sedimentological and paleoenvironmental evidences of tsunami deposits. Two wells were realized using a rotary drilling lorry, and two cores, up to 8 m long each one were obtained. Unfortunately, the field survey had to be stopped, as numerous problems arisen with the drilling machines, with breaking and lost of material during the manoeuvres.

- NEAREST-07 cruise-Leg 2. CSIC Participant: Z. Roselló. During Leg 2 of the RV Urania cruise, 3 gravity cores (NE07-1, -2, -3) were acquired in the Lagos Canyon, Horseshoe Fault and South Portimao Bank
- Planning and selection of sampling drilling sites to be recovered using a rotary corer in order to obtain a continuous core up to 30 m long in 2-3 stations of the Rio Piedras marshes.
- Study and interpretation of 12 prospecting wells (5 to 8 m long) already acquired in the Rio Piedras marshes
- Grainsize analyses of 4 prospecting wells (8 m long), age ca. 2400 BP. There are no evidences of high-energy episodes.
- Grainsize analyses, geochemistry and environmental magnetics of the manual cores acquired in the Rio Piedras marshes (Huelva).
- Macrofauna analyses of the cores.
- During the Rio Piedras fieldtrip, microfauna were analyzed in situ in order to distinguish the boundary between the Neogene and Quaternary lithologies. This is crucial in order to decide the depth at which to stop the drill. Participants: micropaleontologists from the Univ. de Salamanca, specialists in tsunami deposits, and specialists in core logging
- Compilation map of marine sediment cores acquired in the Gulf of Cadiz.
- Interpretation of sediment physical properties data from cores MD03-2701 (Tagus Abyssal Plain), MD03-2702 (Infante D. Henrique Basin), MD03-2703 and MD03-2704 (Horseshoe Abyssal Plain) measured using the multi sensor core logger GEOTEK (magnetic susceptibility, p-wave velocity, and gamma-ray attenuation). Lightness and colour parameters (a* and b*) were measured using a spectrophotometer.
- Interpretation of major element composition of cores MD03-2701 to 2704 using a non-destructive X-ray fluorescence (XRF) scanner from RCOM-University of Bremen (Germany). The following elements where measured: K, Ca, Ti, Fe, Mn, Cu, Sr, V, Cr, Co, Ni, Zn, Pb, at 2cm resolution except for core MD03 2702, which was at 1cm.
- Bed to bed correlation of physical properties (magnetic susceptibility) and sediment composition (Ca/Ti) of Holocene hemipelagic and turbidite events of cores MD03-2701 to 2704.
- Grain-size analyses of 31 samples obtained in sandy turbidite bases > 2 cm thick. A settling tube for the coarse-grained fraction (> 50 μm) and SediGraph 5100 for the silt and clay fractions were used. To define the boundary between turbidite tails and hemipelagites, CSIC analyzed 105 smear slides obtained at the upper part of the turbidites.
- For radiocarbon dating CSIC selected 25 samples of Holocene hemipelagic sediment located few centimeters below the turbidite bases. Hand-picking between 7 and 10 mg individual foraminifera of the same specie with a diameter larger than 250 μm. Orbulina universa was preferentially used, although Globigerina bulloides, Globigerinoides ruber (sp. white), Neogloboguadrina pachyderma and mixed ones, were also selected when dominant. Foraminifera were prepared and dated at the NOSAMS-WHOI laboratory
- Radiocarbon ages were converted into calendar ages using OxCal-3 calibration software based on an updated reference curve Marine04.14c. Time variations in the reservoir ages for the Portuguese Margin were considered. CSIC constrained successive calibrated ages using hemipelagic time interval between events. They obtained a calendar age for every single turbidite during the Holocene.

WP 10 Management activities have been carried out by Juan José Dañobeitia.

Costs occurred and major deviations

Personnel costs: The major items are the two contracts of Sara Martinez and Zoraida Rosselló which have been working on MCS processing (WP2) and sediment core analysis (WP6), respectively, as well as 11 month of Sergi Ventosa grant, who has worked on signal processing adapted to OBS data (for Nearest-Seis cruise).

Travelling costs are slightly higher than expected. The difference is mainly due to the participation of Sara Martinez in the ESF EuroMargins MVSeis cruise (RV L'Atalante) devoted to MCS acquisition in the Gulf of Cadiz, which was not initially planned.

Consumable includes the 14C dating of 18 marine samples as well as the yearly cost of research activities carried out by UNED for Task 6.1. (e.g. geomorphological mapping, study and interpretation of numerous prospecting wells, grainsize, micro and macrofauna analyses, etc)

Regarding person/month distribution per workpackages, there has been an important supplementary effort added to Workpackage 1, from 3 to 9 person/months. This is mainly due that CSIC has been deeply involved in analyzing new data and producing maps for Task 1.2 as well as Task 1.1.

Contractor 4 AWI

Activities performed

WP 3 AWI took care of the application for the OBS to the DEPAS pool; moreover they prepared and conducted the deployment of the OBS.
In preparation of the deployment, the related consumables (anchors, batteries, supplementary equipment) were ordered, the appropriate insurance obtained and the necessary external technicians engaged.
Furthermore, the responsible person from AWI for the deployment (W. Geissler) participated in a OBS recovery cruise onboard RV Aegaeo in spring 2007 (Aegaean Sea) to improve the experience with the new OBS.
Seismometer tests were performed at the Conrad observatory Pernitz (Austria) and at the University of Hamburg (Germany). In August and September 2007 22 OBS were finally prepared and deployed during cruise with RV Urania in the Gulf of Cadiz. 1 OBS were deployed for 2 days to compare the data with the GEOSTAR observatory.

Costs occurred

Personnel costs: such costs refers to 10,75 man-months dedicated by AWI staff to research and development tasks carried out during the first year of activity.
Travels: participations to scientific expedition on board of R/V Urania and participation to NEAREST project meetings.

Consumables refers to transport, mobilisation, and equipment for the 24 BB-OBS deployment (anchors, batteries, supplementary equipment).

Other costs refer to the OBS insurance necessary to allow the deployment in the Gulf of Cadiz.

Major deviations

Due to the late scientific expedition period within the first year (23 Aug to 4 Sep.2007), and the unexpected need for second deployment cruise, which will take place in November 2007 not all

invoices from the sub-contractors have been received by AWI within the present reporting period. Anyway, invoices from the external technicians should be available just after the second cruise in November 2007, thus reaching a level of expenditure closer to the initially budgeted one.

From person-month point of view, no contributions of AWI to work package 2 could be made, since the cruise for the refraction experiment was shifted outside the time window of this reporting window.

Contractor 5 UBO

Activities performed

WP 1 Tsunami sources of tectonic origin

- The seafloor morphology was investigated using multi-beam bathymetry showing distinct lineaments as well as broad regions of recent deformation. These data have been provided to all interested partners.
- Tsunami modelling work performed together with FFCUL for a subduction plane source is being pursued, including modelling at a larger scale covering the entire North Atlantic.

WP2 Active seismic/velocity model

- Wide angle data acquired during the Sismar cruise (April 2001) are provided for the Nearest project. Most have been published. Original records have been made available for further study within the Nearest project, after quality control and reformatting.
- A database of marine reflection seismic profiles in the study area was established (together with FFCUL and CSIC) which image deformation of recent sediment layers in cross-section. These include primarily the 360 channel deep seismic Sismar data (R/V Nadir, April 2001) and the DelSis 24 channel (R/V Suroit April 2005) data. These data have been provided to all interested partners. A new HR (sparker) seismic cruise took place in July 2007 in areas of active faulting on the SW Spanish and NW Moroccan platforms (R/V Cote de la Manche, PI P. Leroy).

WP6 Tsunami records (offshore sedimentological)

- Five sediment cores (35 m cumulative length) acquired during the DelSis cruise (R/V Suroit April 2005) have been analysed (x-ray and density logs, sedimentological analysis) and dated (biostratigraphic dating, C14 dating).

WP10 Attendance at the management meetings and workshops (M.A. Gutscher, Workshop and Management Meeting in Bologna October 2006), (M.-A. Gutscher, Workshop and Management Meeting in Lisbon, May 2007).

Costs occurred

Personnel costs: such costs refers to UBO and CNRS staff involved in the project execution.

Travel costs: refers to the attendance at the plenary workshops and management meetings held in Bologna, October 2006 and in Lisbon, May 2007.

No major deviation occurred in this reporting period

Contractor 6 INGV

Activities performed

WP1 In order to contribute to the identification and characterisation of the large potential tsunami sources, the parameters (Longitude, Latitude, Magnitude) of the earthquake occurred in the offshore area were extracted from the available catalogue and examined.

WP3 Waveforms of some recent earthquakes as recorded by land stations were examined to quantitatively estimate the P and S wave amplitude attenuation by comparison with the waveforms acquired at similar depth and epicentral distance by GEOSTAR type platform like SN-1 operating at 2000 w.d. offshore East Siciliy.

WP 4 Definition of sensor requirements and sensor selection. The requirements of the detection software (e.g., detection algorithm, triggering threshold, messages) have been completed with the identification of the new sensors/devices to be integrated in GEOSTAR.

- Adaptation and upgrading of the GEOSTAR seafloor observatory structure to perform the tasks of the project. Some of the design and development activities of the task are the subject of a subcontract committed to Tecnomare-ENI SpA (Italy) which is the designer and developer of GEOSTAR observatory in the original configuration. INGV took care of the development of software.
- Hardware integration and tests of new sensors/devices
- Preparation planning and development of a long-term mission, cruises for deployment and recovery: INGV took care of Observatory deployment/recovery procedures

WP10 Contribution to the project management by reporting the activities of WP4 with the issue of periodical reports and cost statement contribution.

Costs occurred

Personnel costs: Such costs refers to personnel engaged by INGV to work on the project
Subcontracting: subcontract committed to Tecnomare-ENI SpA (Italy) for the design and development of GEOSTAR observatory
Other costs: € 45.000 to activate a year insurance policy for all the equipment deployed in the Gulf of Cadiz. In addition it also covers cover any risk to damage things or harm people during the operations of deployment.

No major deviation occurred in this reporting period

Contractor 7 TFH

Activities performed

WP 4 Development of the sonarlevelling system for MODUS, including interfaces, gyro, layout of the control, pre-programming, test in the lab, safety modes.
Telemetry update, exchange of components, testing in the lab.
Check of MODUS, repair, maintenance and exchange of components for safety reasons.

WP8 Planning of the Nearest cruise, logistics, participation to the cruise (August 2007). Set up of MODUS on board, check on board, deployment of GEOSTAR. Performance tests in the sea of all components including the new ones.

WP10 Participation at the plenary meetings, reporting and coordination of TFH work.

Costs occurred

Personnel costs: such costs refer to personnel engaged by TFH to work on the project

Travel costs refer to the travels made to attend the plenary meetings held in Bologna (October 2006) and in Lisbon (May 2007) and to participate at the Nearest cruise (August 2007)

Consumables refer to components for the levelling of the sonar system. Autolevelling allows to follow the system MODUS to compensate motion due to sea state. This includes the Gyro system for the indication of the relative positions. Moreover the telemetry had to be repaired and updated to allow the full performance of the communication from the sea to the ship based control platform of MODUS

Other costs refers to the transportation of MOUDS to and from Faro (PT) to the base in Berlin (DE)

The consumption of consumables in this reporting period has been lower than initially foreseen, as the development for the equipment took longer. MODUS has been partly adapted to the higher sea states in the Atlantic, the rest will be realized for the next cruise, which is the more critical operation. Therefore some consumable costs will be just shifted to the second year.

Contractor 8 UGR

Activities performed

WP1 Review of sources of tectonic origin (focal mechanism data)

- Compilation of focal mechanism in the Gulf of Cadiz in the period 2005-2007 by using broad band seismograms of seismic stations deployed in Portugal (mainland and Madeira Islands), Spain and Morocco. Eight new focal mechanisms have been inverted by modelling the complete seismogram (P, S and surface waves).
- Inversion of the faulting parameters of the 12 th February 2007, Mw=6.0 earthquake in the Horseshoe plain.
- Determination of the length of the seismogenic structure necessary to generate a Mw=8.5-8.7 similar to the 1755 Lisbon earthquake

WP3 Seismic monitoring of mainland (Portugal, Spain and Morocco) data

- Study of the seismic anisotropy by using teleseismic phases SKS recorded at 16 seismic stations of South Spain and north of Africa. Seismic anisotropy revealed to be a fundamental tool to retrieve information of the geodynamic scenario.
- Data collection of teleseismic events covering the period 2001-2006. Selection of events occurring at distances larger than 85° and of magnitude (Mw) larger than 5.7. For the distance range between 130 and 165 degrees UGR also selected SKKS phases. Careful visual inspection of the data that allowed to keep about 207 seismograms from 67 teleseismic events.
- Analysis of the teleseismic data to determine the two splitting parameters, the fast polarization direction and the delay time between the fast and the slow components. The area of investigation extends across the most important geological structures in the south of Iberian Peninsula.

- Preliminary analysis of the shear-wave splitting measurements from stations in the Betic domain and stations further North in the southern part of the Hercynian Iberia.
- Contact established with Josep Gallart, leader of the TopoIberia project to study the possibility to share data between NEAREST and TopoIberia.
- Realisation of observations at teleseismic distances
- Relocation with convenient algorithm of 38 earthquakes in the study area in the Gulf of Cadiz
- Performing a source-depth grid search in steps of 5 km. UGR select the recordings that show less complicated waveforms, excluding the waveforms that are most affected by crustal reverberation at the receiver side.
- The 12 th February 2007, Mw=6.0 earthquake has been modelled at teleseismic distances to retrieve real information of the focal depth. Depth of the seismic source has been modelled to a depth of 40 under sea floor.
- Inversion of regional moment tensor of earthquake located in Gulf Cadiz in the period between 2005-2007 in order to obtain source faulting parameters and dept of the centroid.
- Selection of the seismograms. A total of eight earthquakes suitable for inversion procedure have been selected under the following criteria: number of broad band seismograms with enough azimuthal coverage available and signal/noise ratio at 20-50 s period band. The parameters of the inversion have been included in the catalogue of the regional seismic moment of the IAG.
- Special analysis has been carried out with the The 12 th February 2007, Mw=6.0 earthquake.

WP 5 Data integration/ integrated tsunami detection network.

- Data collector at UGR is already running 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, near real-time, from 13 broad-band seismic stations + 9 SP operating in southern Spain.
- A new DSL line for data interrogation has been implemented at GORA (broad band station managed by UGR-IAG).
- A visit to the Institute of Meteorologia at Lisbon was carried out by UGR staff in order to understand characteristics of the data collector at Portugal and how to proceed for sharing data between both UGR and IM data collector.
- Upgrade of the interrogation SEISNET software is now under study to improve the conditions of obtaining data and fast exchange.
- Software for sharing data SEEDLINK under Seiscomp protocol is also under study.
- Two important parameters related with the seismotectonic of the Cadiz Gulf in SW Iberia have been investigated: depth and faulting parameter of the earthquakes in the region.
- Working in algorithms for fast determination of seismic source.

WP 10 Project Management

- participation to management meetings and progress reporting activity

Costs occurred

Personnel costs: refer to 1 scientist (Flor de Lis Mancilla) recruited by UGR from 1 April 2007 to work on the development of fast tracking algorithms of seismic source, and to carry out the analysis of the seismicity and seismotectonic of the Gulf of Cádiz.

Travel costs refer to the travels made to attend the plenary meetings held in Bologna (October 2006) and in Lisbon (May 2007). Additional cost for travel is due to a small research visit (two weeks) to the Montpellier University where a research on SkS anisotropy in the Gibraltar arc is now jointly developing, and for a research stage (five months) carried out by Flor de Lis Mancilla at the GeoForschungsZentrum Potsdam.

Consumables: main expenses come from soft and hardware maintenance of the data-collector

No major deviation occurred in this reporting period

Contractor 9 IM

Activities performed

WP4 IM participated to the definition of the instrumentation for the GEOSTAR equipment as well as to the definition of the triggering parameters by preparing and analysing data volumes of onshore seismic stations.

WP5 IM installed and developed a prototype of a data concentrator, which is recording in real-time data from several seismic stations of Southern Portugal and one from Morocco. Also a real-time detector, an associator and location procedures were added, allowing fast earthquake determinations.

WP8 IM collaborated in the preparation of the data concentrator to receive synthetic information in order to test the prototype

WP9 IM presented the project in some national and international workshops.

WP10 Management activities were mainly related to coordination and progress reporting

Costs occurred

Personnel costs: correspond to the salary of young researcher who has been working on several tasks of the project

Travel costs refer to the travels made to attend the plenary meetings held in Bologna (October 2006) and in Lisbon (May 2007).

Consumables: hardware used to host the data server for the early warning system prototype

No major deviation occurred in this reporting period

Contractor 10 CNRST

Activities performed

WP1 Participation of Moroccan scientists in the identification and compilation of tsunamis sources in the Gulf of Cadiz. CNRST contributed by synthesizing the existing scientific information on the offshore of the Morocco Atlantic coast. In particular CNRST carried out:

- a compilation of existing work on the seismic refraction, conducted offshore Morocco: between Agadir and Essaouira and the region off My Bousselham

offshore Morocco in light of E-W accidents mapped in the new neotectonic map developed within NEAREST

- a compilation of neotectonic accidents, affecting the NW of Morocco
- a field mission for the identification of active accidents in the region between Kénitra and Larache. These accidents may constitute an extension of neotectonic accidents (WP1 map) in the NW part of Morocco.

WP2 Characterization of the tsunami source areas

- A synthesis of the Atlasic seismicity based on the Moroccan grid seismic data has been elaborated, based on historical seismicity data from several seismic events that generated tsunamis more or less important on the Mediterranean and Atlantic coasts of Morocco.

WP3 Seismological monitoring

- Participation in the establishment of an underwater observatory in August 2007
- Geological field reconnaissance for the site selection for the installation of a mobile seismological network in Lalla Mimouna Hills, Northern Morocco
- Monitoring the potential microseismic activity in the Lalla Mimouna area between Kenitra and Larache cities in the NW of Morocco.
- Seismic synthesis of the Lalla Mimouna region, Northern Morocco
- Geological field reconnaissance for the installation site of a Broad Band station in The Sidi Ifni Precambrian shield, Anti Atlas, Southern Morocco.
- Geological Reconnaissance for installing a new VBB seismic network
- Monitoring local and regional Earthquakes using a VSAT-based National Seismic Network (NSN) and Seismic Information System (SIS) in Morocco.

WP5 Data integration/ Integrated tsunami detection network

- Seismic Data exchange between Moroccan and Portuguese Partners
- Harmonization of the determination of the epicentres of the Atlantic earthquakes between the various seismic networks of the area

WP6 Paleotsunami and Paleoseismic records

- Organisation of 2 field trips to carry out a preliminary geological reconnaissance of the main estuaries, lagoons and low coastal lands between Moulay Bousalham and Tan Tan, Atlantic Coast Morocco

WP7 Modelling of tsunami impact

- Elaboration of tsunami propagation and inundation models along the Atlantic coast, on the most populated area in Morocco between Casablanca and Rabat.

WP8 Collaboration in the realisation of a feasibility study for a future early warning system

WP9 Awareness raising in the Moroccan national authorities on the importance of the NEAREST Project

Realisation of 2 press releases and 1 radio announcement

WP10 Coordination of Moroccan activities, project management and administration, participation to management and Steering Committee Meetings, reporting

Costs occurred

Personnel costs: Such costs refers to personnel of CNRST to work on the project

Travel costs

Bologna Italy NEAREST: Kick-off Meting
Atlantic costs Morocco : Field Trip
Lisbon Portugal - NEAREST: Mid-year international Meeting
Paris, France: Meeting UNESCO: COI: GOHMS
Paris,France: Meeting UNESCO: COI: NEAMTWS
Morocco Gelogical Rfield reconnaissance: Lalla Mimouna Region
Morocco Seismic network installation: Lalla Mimouna region

Consumables PCs and Computer supplies
Other costs: 4 seismic stations deployed in Lalla Mimouna Region

Contractor 11 XISTOS

Activities performed

WP 5 Xistos modulated the concept of Automatic Alarm System that can be displayed anywhere in an ocean and associated to automatic messages sent to decision levels if an alarm system detects a tsunami during a simulation.

Xistos gave the simulator the possibility to integrate field calculated data in real time, as height of the waves, epicentre of a seism, epicentre of a tsunami due to a marine landslide.

WP8 XISTOS engineers developed a simulator for seismic and tsunamis events. This simulator has as principal objective to give to rescue national services a tool that permits to test their ability to face with a natural hazard event of great dimension and to validate their operational strategies planned for this case of situation. Both cases of tsunamis occurred after a seismic event or after a landslide submarine event have been realized.
Concerning the users interface rescue services, Xistos took in consideration the two aspects that are more frequently used in Europe by Civil Protection Services: the DOS level in charge of strategy and logistic and COS level in charge of the operations on the operational field.

Costs occurred

Personnel costs: correspond to the Xistos staff who have worked on the project

Travel costs refer to the:

- October 2006, Bologna, Nearest kick-off meeting
- January 2007 Rabat Morocco: collaboration with Colonel Benziane on the use of simulators in case of natural hazards as seism and tsunamis
- March 2007 Lisbon: (2 persons) collaboration with Colonel Antunes on the different simulator aspects and utilisation
- May 2007 Lisbon: Nearest plenary meeting.

Major deviation

Most part of the work to be carried out by Xistos within the whole project duration has been performed during the first year, anticipating outputs initially expected at the end of the second year. Actually the most import part of Xistos activity in the first part of the project could have been executed without relevant dependence from the progress made by the other partners.

TABLE 3

Cost Budget Follow-up Table								
Contract N	**37110**	**Acronym**	**NEAREST**				date	15/11/2007
Participants	**Type of expenditure (as defined by participants)**	**budget**	**Actual costs(Eur0)**				**% spent**	**remaining budget (Euro)**
			period 1	**period 2**	**period 3**	**total**	**total**	
		e	**a**	**b**	**c**	**e1**	**(a+b+c)/e**	**e-e1**
1 ISMAR	total person-month	111,00	51,00			51,00	46%	60,00
	personnel costs	493.950,00	229.721,19			229.721,19	47%	264.228,81
	subcontracting	64.000,00	30.000,00			30.000,00	47%	34.000,00
	travels	37.489,59	19.737,37			19.737,37	53%	17.752,22
	consumables	64.000,00	33.715,07			33.715,07	53%	30.284,93
	indirect costs	420.351,45	181.354,74			181.354,74	43%	238.996,71
	other costs	21.000,00	15.000,00			15.000,00	71%	6.000,00
	Total Costs	1.100.791,04	509.528,37			509.528,37	46%	591.262,67
2 FFCUL	total person-month	102,00	34,00			34,00	33%	68,00
	personnel costs	101.796,00	43.121,63			43.121,63	42%	58.674,37
	subcontracting	34.500,00	2.300,00			2.300,00	7%	32.200,00
	travels	46.296,17	15.778,43			15.778,43	34%	30.517,74
	consumables	35.615,00	2.131,58			2.131,58	6%	33.483,42
	indirect costs	68.640,43	25.277,75			25.277,75	37%	43.362,68
	other costs	159.495,00	65.357,13			65.357,13	41%	94.137,87
	Total Costs	446.342,60	153.966,52			153.966,52	34%	292.376,08
3 CSIC	total person-month	74,00	27,80			27,80	38%	46,20
	personnel costs	240.500,00	66.439,25			66.439,25	28%	174.060,75
	subcontracting	6.000,00	-			-	0%	6.000,00
	travels	41.158,24	10.896,27			10.896,27	26%	30.261,97
	consumables	110.000,00	25.445,00			25.445,00	23%	84.555,00
	indirect costs	377.585,00	91.686,17			91.686,17	24%	285.898,83
	other costs		-			-		
	Total Costs	775.243,24	194.466,69			194.466,69	25%	580.776,55
4 AWI	total person-month	36,14	10,75			10,75	30%	25,39
	personnel costs	216.059,33	48.924,62			48.924,62	23%	167.134,71
	subcontracting	80.000,00	-			-	0%	80.000,00
	travels	13.104,26	3.976,83			3.976,83	30%	9.127,43
	consumables	105.500,00	529,97			529,97	1%	104.970,03
	indirect costs	83.932,72	25.336,28			25.336,28	30%	58.596,44
	other costs	85.000,00	73.250,00			73.250,00	86%	11.750,00
	Total Costs	583.596,31	152.017,70			152.017,70	26%	431.578,61
5 UBO	total person-month	32,00	6,17			6,17	19%	25,83
	personnel costs	130.912,00	42.422,67			42.422,67	32%	88.489,33
	subcontracting		-			-		
	travels	9.847,50	1.450,62			1.450,62	15%	8.396,88
	consumables	6.720,00	-			-	0%	6.720,00
	indirect costs	30.915,90	8.774,65			8.774,65	28%	22.141,25
	other costs	7.100,00				-	0%	7.100,00
	Total Costs	185.495,40	52.647,94			52.647,94	28%	132.847,46
6 INGV	total person-month	36,00	11,00			11,00	31%	25,00
	personnel costs	135.000,00	40.333,00			40.333,00	30%	94.667,00
	subcontracting	76.441,40	75.000,00			75.000,00	98%	1.441,40
	travels	24.240,00	4.977,11			4.977,11	21%	19.262,89
	consumables	105.000,00	86.483,12			86.483,12	82%	18.516,88
	indirect costs	71.042,60	35.985,00			35.985,00	51%	35.057,60
	other costs	90.973,00	48.131,81			48.131,81	53%	42.841,19
	Total Costs	502.697,00	290.910,04			290.910,04	58%	211.786,96
7 THF	total person-month	12,00	7,00			7,00	58%	5,00
	personnel costs	61.200,00	29.622,99			29.622,99	48%	31.577,01
	subcontracting		-			-		
	travels	10.000,00	3.194,40			3.194,40	32%	6.805,60
	consumables	56.861,67	16.878,87			16.878,87	30%	39.982,80
	indirect costs	28.012,33	10.583,25			10.583,25	38%	17.429,08
	other costs	12.000,00	3.220,00			3.220,00	27%	8.780,00
	Total Costs	168.074,00	63.499,51			63.499,51	38%	104.574,49

Participants	Type of expenditure (as defined by participants)	budget	Actual costs(Eur0)				% spent	remaining budget (Euro)
			period 1	period 2	period 3	total	total	
		e	a	b	c	e1	(a+b+c)/e	e-e1
8 UGR	total person-month	36,00	6,03			6,03	17%	29,97
	personnel costs	65.988,00	12.102,48			12.102,48	18%	53.885,52
	subcontracting		-			-		
	travels	20.345,33	10.555,55			10.555,55	52%	9.789,78
	consumables	22.000,00	10.732,96			10.732,96	49%	11.267,04
	indirect costs	21.666,67	6.678,19			6.678,19	31%	14.988,48
	other costs					-		-
	Total Costs	130.000,00	40.069,18			40.069,18	31%	89.930,82
9 IM	total person-month	9,00	3,83			3,83	43%	5,17
	personnel costs	22.691,70	5.995,87			5.995,87	26%	16.695,83
	subcontracting		-			-		
	travels	9.025,80	1.026,00			1.026,00	11%	7.999,80
	consumables	12.250,00	3.554,00			3.554,00	29%	8.696,00
	indirect costs	8.793,50	2.115,16			2.115,16	24%	6.678,34
	other costs	-				-		-
	Total Costs	52.761,00	12.691,03			12.691,03	24%	40.069,97
10 CNRST	total person-month	24,00	13,40			13,40	56%	10,60
	personnel costs	49.920,00	38.416,40			38.416,40	77%	11.503,60
	subcontracting		-			-		
	travels	31.000,00	10.333,76			10.333,76	33%	20.666,24
	consumables	2.211,67	1.255,61			1.255,61	57%	956,06
	indirect costs	23.626,33	16.968,18			16.968,18	72%	6.658,15
	other costs	35.000,00	34.835,16			34.835,16	100%	164,84
	Total Costs	141.758,00	101.809,11			101.809,11	72%	39.948,89
11 XISTOS	total person-month	8,50	8,00			8,00	94%	0,50
	personnel costs	85.000,00	80.000,00			80.000,00	94%	5.000,00
	subcontracting		-			-		
	travels	22.520,00	9.500,00			9.500,00	42%	13.020,00
	consumables		-			-		
	indirect costs	25.500,00	24.000,00			24.000,00	94%	1.500,00
	other costs	-				-		-
	Total Costs	133.020,00	113.500,00			113.500,00	85%	19.520,00
TOTAL	total person-month	480,64	178,98	-	-	178,98	37%	
	personnel costs	1.603.017,03	637.100,10	-	-	637.100,10	40%	
	subcontracting	260.941,40	107.300,00	-	-	107.300,00	41%	
	travels	265.026,89	91.426,34	-	-	91.426,34	34%	
	consumables	520.158,34	180.726,18	-	-	180.726,18	35%	
	indirect costs	1.160.066,93	428.759,37	-	-	428.759,37	37%	
	other costs	410.568,00	239.794,10	-	-	239.794,10	58%	
	Total Costs	4.219.778,59	1.685.106,09	-	-	1.685.106,09	40%	

Person-Month Status Table

contract n 37110 Acronym: NEAREST Period 1 from 01/10/2006 to 30/09/2007		Partner Person-months per Workpackage												AC own staff						
		TOTALS	1 ISMAR	2 FFCUL	3 CSIC	4 AWI	5 UBO	6 INGV	7 TFH	8 UGR	9 IIM	10 CNRST	11 XISTOS	AC totals	2 FFCUL	6 INGV	7 TFH	8 UGR	9 IIM
	Actual WPperson months	**49,90**	18	18	9		1	1		0,7		2,2		**1**	5,18	1		2	
WP1 Tsunami source identification	Planned WP total person months	**56,00**	20	22	3		5	2		2		2							
	Actual Wp person months	**16,20**	2,5		8,5		4					1,2		**0**					
WP2 Tsunami source characterisation	Planned WP total person months	**74,00**	18	4	27	2	18	2				3							
	Actual Wp person months	**16,75**	2		1	10,75				1,5		1,5		**7**		2		5	
WP3 Seismological monitoring	Planned WP total person months	**71,00**	14	4	4	27	3	5		11	1	2							
	Actual Wp person months	**24,57**	8		0,1			9,67	5	0,8	1			**16,5**	1	12	2	1	0,5
WP4 Tsunami signal detection	Planned WP total person months	**43,00**	10	4	1	2		12	8,5	4	1,5								
Data integration/ Integrated tsunami	Actual Wp person months	**11,63**	5		0,1					2,33	2	0,2	2	**9**		2		5	2
WP5 detection network	Planned WP total person months	**56,50**	3	14	5	2	2,5	7		12	4	5	2						
Paleotsunami and Paleoseismic	Actual Wp person months	**28,30**	6	8	7,8		1					5,5		**2,12**	2,12				
WP6 records	Planned WP total person months	**66,00**	14	18	27		3	1				3							
Modelling of tsunami impact on SW	Actual Wp person months	**10,70**	2	8						0,2		0,5		**3,65**	3,65				
WP7 Portugal	Planned WP total person months	**47,00**	18	22				1		2		4							
Feasibility study and prototype for	Actual Wp person months	**12,63**	1,5		1				1,8	0,5	0,33	1,5	6	**3,1**	1,1	1	1		
WP8 an EWS	Planned WP total person months	**39,00**	1	12	5	1		4	3	3	1	3	6						
Circulation of project information to	Actual Wp person months	**2,63**	2								0,33	0,3		**0,25**					0,25
WP9 end users	Planned WP person months	**10,00**	3	1	1	1		1		1	1	1							
	Actual Wp person months	**5,67**	4		0,3		0,17	0,33	0,2		0,17	0,5		**3,4**	0,3		1	2	0,1
WP10 Project management	Planned WP person months	**18,10**	10	1	1	1,1	0,5	1	0,5	1	0,5	1	0,5						
TOTAL	Actual tot person months	**178,98**	**51**	**34**	**27,8**	**10,75**	**6,17**	**11**	**7**	**6,03**	**3,83**	**13,4**	**8**	**46,02**	**13,4**	**18**	**4**	**15**	**2,85**
	Planned total person months	**480,60**	**111**	**102**	**74**	**36,1**	**32**	**36**	**12**	**36**	**9**	**24**	**8,5**						

2. Form C Financial statements

The PDF file containing all data referred to Form C “CS_37110_1_FORMC_all.pdf” is included as separate file in the present report.
The paper version of the present document contains the forms signed in originals by the authorised persons of each project partner.

3. Summary Financial report

Summary Financial Report

Type of Instrument	STReP	Project Title (or Acronym)	INTEGRATED OBSERVATIONS FROM NEAR SHORE SOURCES OF TSUNAMIS: TOWARDS AN EARLY WARNING SYSTEM	Contract N°	37110
Reporting period number	1	From (dd/mm/yyyy)	01/10/2006	To (dd/mm/yyyy)	30/09/2007	Page	1/1

Contractor n°	Organisation Short Name	Cost model used	Eligible costs (in €)	Type of activities: Research and Techno-logical Development / Innovation (A)		Demonstration (B)		Training (C)		Management of the consortium (D)		Other Specific Activities (E)		Total eligible costs (F)=(A)+(B)+(C)+(D)+(E)		Receipts		EC contribution	
				Contractor	Third party(ies)	Contractor	Third party(ies)	Contractor	Third party(ies)	Contractor	Third party(ies)	Contractor	Third party(ies)	Contractor	Third party(ies)	Contractor	Third party(ies)	Maximum	Requested
1	CONSIGLIO NAZIONALE DELLE RICERCHE	FC	Direct eligible costs	284.776,42	0,00	0,00	0,00	0,00	0,00	43.397,21	0,00	0,00	0,00	328.173,63	0,00	0,00	0,00	282.287,90	282.287,90
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*30.000,00*	*0,00*	*0,00*	*0,00*	*30.000,00*	*0,00*				
			Indirect eligible costs	169.704,53	0,00	0,00	0,00	0,00	0,00	11.650,21	0,00	0,00	0,00	181.354,74	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*454.480,95*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*55.047,42*	*0,00*	*0,00*	*0,00*	509.528,37	0,00				
2	FUNDACAO DA FACULDADE DE CIENCIAS DA UNIVERSIDA DE DE LISBOA	AC	Direct eligible costs	128.688,77	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	128.688,77	0,00	600,00	0,00	153.966,52	153.966,52
			of which direct eligible costs of subcontracting	*2.300,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*2.300,00*	*0,00*				
			Indirect eligible costs	25.277,75	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	25.277,75	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*153.966,52*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	153.966,52	0,00				
3	CONSEJO SUPERIOR DE INVESTIGACI ONES CIENTIFICAS	FC	Direct eligible costs	101.014,77	0,00	0,00	0,00	0,00	0,00	1.765,75	0,00	0,00	0,00	102.780,52	0,00	0,00	0,00	99.334,59	99.334,59
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	89.249,43	0,00	0,00	0,00	0,00	0,00	2.436,74	0,00	0,00	0,00	91.686,17	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*190.264,20*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*4.202,49*	*0,00*	*0,00*	*0,00*	194.466,69	0,00				
4	ALFRED-WEGENER-INSTITUT FUER POLAR UND MEERESFOR SCHUNG	FCF	Direct eligible costs	126.681,42	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	126.681,42	0,00	0,00	0,00	76.008,85	76.008,85
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	25.336,28	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	25.336,28	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*152.017,70*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	152.017,70	0,00				
5	UNIVERSITE DE BRETAGNE OCCIDENTAL E	FCF	Direct eligible costs	10.946,47	31.653,72	0,00	0,00	0,00	0,00	0,00	1.273,10	0,00	0,00	10.946,47	32.926,82	0,00	0,00	27.087,83	27.087,83
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	2.189,29	6.330,74	0,00	0,00	0,00	0,00	0,00	254,62	0,00	0,00	2.189,29	6.585,36				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*13.135,76*	*37.984,46*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*1.527,72*	*0,00*	*0,00*	13.135,76	39.512,18				

6	ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA	AC	Direct eligible costs	253.675,04	0,00	0,00	0,00	0,00	0,00	1.250,00	0,00	0,00	0,00	254.925,04	0,00	0,00	0,00	290.910,04	290.910,04
			of which direct eligible costs of subcontracting	*75.000,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*75.000,00*	*0,00*				
			Indirect eligible costs	35.735,00	0,00	0,00	0,00	0,00	0,00	250,00	0,00	0,00	0,00	35.985,00	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*289.410,04*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*1.500,00*	*0,00*	*0,00*	*0,00*	290.910,04	0,00				
7	TECHNISCHE FACHHOCHSCHULE BERLIN - University of Applied Sciences	AC	Direct eligible costs	51.896,26	0,00	0,00	0,00	0,00	0,00	1.020,00	0,00	0,00	0,00	52.916,26	0,00	0,00	0,00	63.499,51	63.499,51
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	10.379,25	0,00	0,00	0,00	0,00	0,00	204,00	0,00	0,00	0,00	10.583,25	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*62.275,51*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*1.224,00*	*0,00*	*0,00*	*0,00*	63.499,51	0,00				
8	UNIVERSIDAD DE GRANADA	AC	Direct eligible costs	33.390,99	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	33.390,99	0,00	0,00	0,00	40.069,18	40.069,18
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	6.678,19	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	6.678,19	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*40.069,18*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	40.069,18	0,00				
9	INSTITUTO DE METEOROLOGIA	AC	Direct eligible costs	10.309,73	0,00	0,00	0,00	0,00	0,00	266,14	0,00	0,00	0,00	10.575,87	0,00	0,00	0,00	12.691,03	12.691,03
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	2.061,94	0,00	0,00	0,00	0,00	0,00	53,22	0,00	0,00	0,00	2.115,16	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*12.371,67*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*319,36*	*0,00*	*0,00*	*0,00*	12.691,03	0,00				
10	CENTRE NATIONAL POUR LA RECHERCHE SCIENTIFIQUE ET TECHNIQUE	FCF	Direct eligible costs	83.860,53	0,00	0,00	0,00	0,00	0,00	980,40	0,00	0,00	0,00	84.840,93	0,00	0,00	0,00	51.492,80	51.492,80
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	16.772,10	0,00	0,00	0,00	0,00	0,00	196,08	0,00	0,00	0,00	16.968,18	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*100.632,63*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*1.176,48*	*0,00*	*0,00*	*0,00*	101.809,11	0,00				
11	XISTOS DEVELOPPEMENT S.A.	FC	Direct eligible costs	89.500,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	89.500,00	0,00	0,00	0,00	56.750,00	56.750,00
			of which direct eligible costs of subcontracting	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*				
			Indirect eligible costs	24.000,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	24.000,00	0,00				
			Adjustment on previous period(s)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				
			Total eligible costs	*113.500,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	113.500,00	0,00				
Total eligible costs				1.582.124,16	37.984,46	0,00	0,00	0,00	0,00	63.469,75	1.527,72	0,00	0,00	1.645.593,91	39.512,18	600,00	0,00	1.154.098,24	1.154.098,24
				1.620.108,62		0,00		0,00		64.997,47		0,00		1.685.106,09		600,00			
Maximum calculated EC contribution for the reporting period (in €) without taking into account receipts				1.070.108,54	18.992,23	0,00	0,00	0,00	0,00	63.469,75	1.527,72	0,00	0,00	1.154.098,24					
				1.089.100,77		0,00		0,00		64.997,47		0,00							
Amount of the financial interests generated by the prefinancing														0,00					
Requested EC contribution for the reporting period (in €)														1.154.098,24					