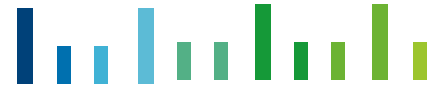


Joint European Research Infrastructure network for Coastal Observatories



Second report of the access activity D1.10

Grant Agreement n° 262584

Project Acronym: JERICO

Project Title: Towards a Joint European Research Infrastructure network for Coastal Observatories

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Table of Contents

1. Document description	5
2. Executive Summary	7
3. Introduction	8
4. Access Rules	9
4.1 Eligibility of user groups	9
4.2 Modality of Access	9
5. Promotion and evaluation	11
5.1 Promotion	11
5.2 Evaluation and selection	11
5.3	Approval of proposals
5.4	Implementation of TNA projects
5.5	Post-access requirements
6. Overview of selected User projects	15
6.1	Project ABACUS
6.2	Project CIEBIO
6.3	Project ECCECs
6.4	Project FITO MicroLFA
6.5	Project FRIPP
6.6	Project GABS
6.7	Project GESEBB
6.8	Project GLISS
6.9	Project MAPOM
6.10 Project MEDACID	31





6.11 Project METRO	33
6.12 Project MOSC	35
6.13 Project MUSICS	37
6.14 Project o-DGTSPOCME	38
6.15 Project OXY-COR	40
6.16 Project RAD	42
6.17 Project RTC	43
6.18 Project SESAM	45
6.19 Project TOFU	48
7. Concluding remarks	50
Appendix I - TNA Project Report Template	52



1. Document description

REFERENCES

Annex 1 to the Contract Description of Work (DoW) version of the 22 Feb. 2011

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2. Executive Summary

This report is an update of D1.7 (First report of the access activity, 12 May, 2013) and describes the activities following the launch of the three Calls, carried out under Task 1.6 “User modalities access for the Trans-National Activities” of the JERICO project.

Information on the Calls’ program, the rules governing the eligibility of user groups and the procedures for the selection and approval of proposals are described in D1.1 (First Call for TNA proposals and its addendum, 12 January, 2012 and 4 May, 2013) and D1.5 (Second Call for TNA proposals, 16 January, 2013) together with the facilities participating in the Calls.

The launch of the 1st Call was preceded by a long period of preparatory work: the drafting of the required publicitary and regulatory TNA documentation, the design of the TNA Web pages and their posting on the JERICO website (www.jerico-fp7.eu). The access opportunity was widely promoted before each Call using through JERICO project and the Consortium media and also diffuse through mailing lists and webpages of other projects and organizations.

This document describes the various steps involved in the implementation of the Calls, giving an overview of the proposals that were accepted and summarizing their achievements so far.

3. Introduction

During its lifetime JERICO offered Transnational Access to a number of unique European Coastal Observatories and Calibration Facilities for international research and technology development.

The primary objective of the JERICO Transnational Access activity was to enable scientists and engineers to freely access coastal infrastructures not available in their own countries. The JERICO Consortium includes research structures such as Ferryboxes, Fixed Platforms, Gliders, and associated support facilities, i.e. Calibration Laboratories.

Access to these facilities will contribute to

- building a long-term collaboration between users and JERICO partners, facilitating staff exchange and scientific cooperation;
- building an European facility for science dedicated to innovation (new sensors, new automated platforms), open to Europe and also to countries of common regional interest (South Mediterranean, Black Sea, Baltic Sea);
- promoting the infrastructure by transferring know-how from the partners to users, with a view to future expansion that will include new partners (possibly also from non-European countries).

JERICO has organized three Calls for Transnational Access (Table 1). Single researchers or research teams (from a single organisation or from a group of organisations) have applied for free of charge access provided they satisfied specific rules set by the Commission and the JERICO Consortium.

	1st Call	2nd Call	3rd Call
Opening of the call	12 January 2012	14 January 2013	19 September 2013
Deadline	3 April 2012	27 March 2013	25 November 2013
Evaluation	April – July 2012	April – June 2013	31 January 2014
Feedback to applicants	July 2012	June 2013	March 2014
1st experiment start	January 2013	October 2013	May 2014
Last experiment end	December 2014	November 2014	December 2014

Table 1 – Schedule of the three JERICO TNA Calls.

Visiting scientists and technical personnel working on approved projects have been provided assisted access to relevant facilities. The operators of the targeted facilities have contributed actively to the user projects by providing all the logistical, technological and scientific support as well as specific training, when needed.

4. Access Rules

A user group can be a single researcher (user) or a team of two or more researchers (users).

The access conceded included logistical, technical and scientific support by the access provider (or infrastructure operator), and any special training required by a user group to use an assigned infrastructure.

JERICO contributed to the travel and subsistence costs relating to visits by users, whenever necessary. A maximum of two travel grants have been assigned to each user group, depending on the length of the requested period of stay.

4.1 Eligibility of user groups

To be eligible, a user group must satisfy the following conditions (see also Annex 3 to the Grant Agreement):

- a) The user group leader and the majority of the users must work in an institution (public or private) established in a Member State of the European Union or a State associated with the 7th Framework Programme.
 - a.1 – Associated States: Switzerland, Israel, Norway, Iceland, Liechtenstein, Turkey, Croatia, the Former Yugoslav Republic of Macedonia, Serbia, Albania, Montenegro, Bosnia and Herzegovina, Faroe Islands (other countries may become associated during the course of FP7, verify @ http://cordis.europa.eu/fp7/who_en.html)
 - a.2 – Applicants who reside outside the European Union (member states and associated states) are supported by JERICO provided they are not the principal applicant, and that they are a minority (less than 50%) in the user group proposing the TNA project.
- b) The user group leader and the majority of the users must work in a country other than the country where the legal entity operating the JERICO facility is established.
- c) Only user groups that are entitled to disseminate the knowledge they have generated under the JERICO project are eligible to benefit from the free-of-charge access to the infrastructure.

4.2 Modality of Access

Unless otherwise specified, access to a specific infrastructure (or a specific installation that is part of an infrastructure) by a user group is to be intended as a concession granted to use the infrastructure to collect specific data following the implementation of a specific automated measuring system. A written contract or agreement between the “Access Provider” or the “Infrastructure Operator” and the “End User” delineates the actions to be undertaken, the resources that will need to be allocated, the length of planned user stays (if any), and the period of use. It also defines the rights and obligations of all the Parties involved, including eventual provisions for early termination of the conferred access.



The access can be

- remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required;
- partially remote: the presence of the user group is required at some stage (e.g. installing and un-installing);
- "in person/hands-on": the presence of the user group is required/recommended during the whole access period.

Depending on the type of infrastructure/installation, access may be shared simultaneously by several user groups (with independent measuring systems). Note that, sometimes, there may already be at least one permanent user to be considered a priori: the operator of the infrastructure.

Unless otherwise stated, the measuring system shall be provided by the user group. EU funding may contribute to shipping costs if necessary but this is evaluated case-by-case.

Whenever possible, the start and end of an access interval will be set to coincide with times scheduled for the ordinary maintenance of the installation in the interests of financial economy (e.g. limiting the costs of vessel-time, etc.)

It is mandatory that a user group verifies the particulars of access to the infrastructure/installation it wishes to utilize by contacting the relevant operator.

It is also strongly recommended that user groups interact directly with the managers of the infrastructures/installations they wish to use during the preparation of proposals. This will permit a better understanding of the feasibilities of the proposed projects by the very parties who will be working together if they are approved, while also fostering closer cooperation between them in addressing practical concerns.

5. Promotion and evaluation

5.1 Promotion

A dedicated Web page was developed on the JERICO website (www.jerico-fp7.eu/tna), where the relevant information was published, including detailed description of the facilities open to TNA (www.jerico-fp7.eu/tna/accessible-facilities), eligibility and access modality (www.jerico-fp7.eu/tna/access-rules), schedule of the calls and procedure of selection, including the composition of the Selection Panel (www.jerico-fp7.eu/tna/calls-and-selection). The text of the Calls had a special section, containing also a downloadable version of the application form and guidelines for application (<http://www.jerico-fp7.eu/tna/calls-and-selection/first-call>, <http://www.jerico-fp7.eu/tna/calls-and-selection/second-call>, <http://www.jerico-fp7.eu/tna/calls-and-selection/third-call>).

Within the consortium, the TNA calls have been promoted, as well as on the JERICO newsletters published in May and in September 2013. Furthermore, the opportunities for access open to research teams throughout Europe were publicised in the institutional webpages of partners (CEFAS, CNR DTA and ISMAR, IBW PAN, IFREMER, IMR, MI, Puertos del Estado), in the webpages of other projects and organizations (Euroris-net, Euroceans, University of Gothenborg, NKE) and diffuse through mailing lists of other projects and organizations (EUROFLEETS, PERSEUS, Marine Ripple Effect, MONGOOS, NOOS, NEXOS MedCLIVAR).

5.2 Evaluation and selection

The evaluation of submitted TNA proposals was conducted via a three-step selection process that assessed them for scientific excellence, innovation and eventual impacts on the state-of-the-art. The evaluation process involved:

- validation of each proposal by the manager of the targeted facility (feasibility assessment);
- evaluation by the Selection Panel (SP) based on scientific excellence, innovation and impacts on the state-of-the-art;
- final assessments by the SP.

This procedure was changed by the Selection Panel after the First Call, for which step (i) followed step (ii), to avoid technically non-feasible proposals.

The Selection Panel comprised members from the JERICO management team, the five members of the JERICO Scientific Advisory Committee and the three external experts on the Board of the JERICO Forum for Coastal Technology:

- ✓ Stefania Sparnocchia, JERICO WP8 leader
- ✓ Patrick Farcy, JERICO coordinator

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- ✓ Pascal Morin, JERICO WP1 coordination team
 - ✓ Dominique Durand, JERICO WP1 coordination team
 - ✓ Ingrid Puillat, JERICO WP1 coordination team
 - ✓ Janet Newton, SAC, University of Washington, USA
 - ✓ George Zodiatis, SAC, University of Cyprus, Cyprus
 - ✓ Richard Dewey, SAC, University of Victoria, Canada
 - ✓ Hans Dalhin, SAC, Director of EUROGOOS
 - ✓ Roger Proctor, SAC, University of Tasmania, Australia
 - ✓ Franciscus Colijn, FCT, Helmholtz Zentrum Geesthacht, Germany
 - ✓ Laurent Mortier, FCT, ENSTA-LOCEAN, France
 - ✓ Alicia Lavin, FCT, Instituto Español de Oceanografía, Spain

Only the seven external members of the Selection Panel have been involved in the proposal evaluations. The five members from the consortium formed a TNA management team that was effectively supported by the JERICO TNA office, based at CNR ISMAR in Trieste, Italy (jerico.tna@ismar.cnr.it). The JERICO TNA office operatively managed calls, proposals and their evaluation process, and supported users and facility operators during the TNA projects implementation.

The submitted proposals have been scored for each of the following criteria:

- Fundamental scientific and/or technical value; potential interest to the research/service-provider community; originality and innovation.
- Quality of the work program: clarity of presentation, adequacy in relation to set objectives.
- Evaluation of risk and payoff.
- Potential for seeding links with Industry.
- Quality of proposing user group.
- European relevance.

5.3 Approval of proposals

The final ratings of the submitted proposals have been ranked in descending order and approval was granted, starting with the proposal with the highest rating and then working downwards.

Priority have been given to projects where the user groups:

- are working in countries where such research infrastructures/installations do not exist;
- have not previously used the infrastructures/installations they are requesting access to.

The results of the selection have been published in the JERICO web site.

5.4 Implementation of TNA projects

Before starting a project approved under JERICO TNA, an END User agreement has been signed between the institution leading the user group (end user), the JERICO Consortium in the person of the Coordinator (IFREMER) and the beneficiary giving access to its infrastructure (facility operator). A draft template of the agreement was prepared by CNR and IFREMER, sent to beneficiaries for improvement and approval and specialized with the involved parties when required. It defined the terms whereby the facility operator put at disposal to the end user the targeted facility as a platform to carry out the experiment detailing:

- The access conditions.
- The end user commitments regarding:
 - obligation in case of cancelation of the experiment by its on-site party;
 - documentation of expenses and distribution of funds among members composing the user group;
 - commitments regarding safety rules;
 - reporting obligation after the visit and during the JERICO life-time, including filling the EC on-line questionnaire and proper acknowledgement to grant agreement n°262584 “JERICO”;
 - obligation for data delivery.
- The facility operator commitments regarding the obligation of communicating
 - confirmation of the availability of the facility;
 - its request regarding the insurance policy;
 - applicable safety rules on-site.
- Conditions regarding end user expense reimbursement and the Coordinator role in managing this issue.
- Obligations and rights of the involved parties for what concerns: intellectual property rights, confidentiality, liability and other legal issues regarding the signed agreement.

A detailed working plan is part of the agreement presenting the scope of the work and its schedule.

5.5 Post-access requirements

The user group leader was required to submit, after the end of his/her project:

- i. A report describing immediate outcomes after the visit and to provide information useful to fill in the European Commission MS Access database. A template for this report was included in the End user agreement (Appendix I).
- ii. The User Group Questionnaire aimed at assisting the Commission to evaluate the Research Infrastructures Action, to monitor the individual contracts, and to improve the services provided to the scientific community (http://cordis.europa.eu/fp7/capacities/questionnaire_en.html).



Moreover, he/she was informed that:

- iii. Any publications or patents resulting from the JERICO TNA project must be reported to the host institute and the JERICO TNA office. Furthermore, all such publications or patents must also contain references to the JERICO grant agreement (no. 262584) and acknowledgements to the host institute.



6. Overview of selected User projects

During its lifetime (from May 2011 to April 2015), JERICO has organized and closed three Calls for Transnational Access. Nineteen out of twenty-four submitted proposals were selected by an independent Panel of Experts, and the related projects received support by JERICO (Table 2).

Project title and references	P.I.	Score
ABACUS: Algerian BASin Circulation Unmanned Survey (CALL_3_3, 14/1211270/B)	Giorgio Budillon (DiST, Univ. "Parthenope", Napoli, Italy)	78.6
CIEBIO: Calibration and inter-calibration exercise of bio-geochemical sensors (CALL_1_11, 12/1210185)	Roberto Bozzano (CNR ISSIA, Genova, Italy)	75.6
ECCECs: Emerging Chemical Contaminants in European Coasts (CALL_2_2, 13/1210695/BF)	Jana Klanova (Masaryk University Research, Centre for toxic compounds in the environment, Czech Republic)	74.7
FITO MicroLFA: Field Test Of MicroLFA nutrients monitoring device for Ferrybox systems (CALL_2_4, 13/1210603/BF)	Luca Sanfilippo (SYSTEA S.p.A., Anagni, Italy)	82.2
FRIPP: FRontal dynamics Influencing Phytoplankton Production and distribution during DCM period (CALL_3_1, 14/1211273)	Antonio Olita (CNR IAMC, Oristano, Italy)	67.9
GABS: Deep Glider Acquisitions between Balears and Sardinia (CALL_1_8, 12/1210183)	Alberto Ribotti (CNR IAMC, Oristano, Italy)	72.0
GESEBB: Glider campaign to estimate the 3D structure of an Eddy in the South-eastern Bay of Biscay (CALL_1_7, 12/1210204)	Ainhoa Caballero Reyes (AZTI Tecnalia, Pasaia, Spain)	68.0
GLISS: Passive sampling and glider technologies for depth-integrated contaminant concentrations in the ocean (CALL_1_13, 12/1210205)	Ian Allan –(NIVA, Oslo, Norway)	87.1
MAPOM: Marine Aerosols Properties Over the Mediterranean (CALL_3_2, 14/1211275)	Jacques Piazzola (Mediterranean Institute of Oceanography, Toulon, France)	78.0
MEDACID: Mediterranean Sea ocean acidification time series experiment (CALL_1_1, 12/1210180/B)	Melchor Gonzales-Davila (Universidad de Las Palmas de Gran Canaria, Spain)	72.7
METRO: MEditerranean sediment TRap Observatory (CALL_2_1, 13/1210601/BF)	Anna Sanchez Vidal (Universitat de Barcelona GRC Geocencias Marines, Spain)	82.8
MOSC: Monitoring oxygen in the Sicily Channel (CALL_2_5, 13/1210604/BF)	Dominique Lefevre (Mediterranean Institute of Oceanography, Marseille, France)	75.2
MUSICS: Multi Sensor Investigation in the Channel of Sardinia (CALL_3_7, 14/1211271/B)	Daniele Iudicone (Stazione Zoologica A. Dohrn, Napoli, Italy)	76.7
o-DGTSPOCME: Organic – Diffusive Gradient in Thin-film for sampling polar organic chemicals in marine environment (CALL_1_4, 12/1210203)	Kevin C. Jones (Lancaster University, United Kingdom)	74.3
OXY-COR: Integration of dissolved oxygen concentration measurements in the long term time series data in the Corsica Channel (CALL_1_9, 12/1210184)	Laurent Coppola (Observatoire Oceanographique de Villefranche/Mer, France)	82.1
RAD: Radiometry Assessment of optical Data for ocean color applications (CALL_2_3, 13/1210602/BF)	Kai Soerensen (NIVA, Oslo, Norway)	82.3
RTC: Reference Temperature Calibration (CALL_1_5, 12/1210181)	George Pethiakos (HCMR, Iraklion, Greece)	76.5
SESAM: Standardised Electrochemical in Situ Assessment of Metal coatings (CALL_1_6, 13/1210589/BF)	Edith Joseph (Université de Neuchatel, Switzerland)	70.1
TOFU: New Tools for Oxygen, Fluorescence and tUrbidity sensors testing and intercomparison (CALL_3_4, 14/1211276)	Roberto Bozzano (CNR ISSIA, Genova, Italy)	74.7

Table 2 – Selected User projects.



6.1 Project ABACUS

General Information

Proposal reference number	CALL_3_3, Agreement n° 14/1211270/B
Project Acronym (ID)	ABACUS
Title of the project	Algerian BAsin Circulation Unmanned Survey
Host Research Infrastructure	CSIC-Glider
Access Starting date - End date	01/09/2014-03/09/2014 (mission aborted) 15/09/2014-20/10/2014 03/11/2014-05/11/2014 (mission aborted) 18/11/2014-19/12/2014
Name of Principal Investigator Home Laboratory	Prof Giorgio Budillon Università degli Studi di Napoli "Parthenope" Dipartimento di Scienze e Tecnologie Centro Direzionale Isola C4 Napoli, Italy
E-mail address	giorgio.budillon@uniparthenope.it
Additional users	Yuri Cotroneo, Giuseppe Aulicino, Giannetta Fusco – DiST, Univ. "Parthenope" Napoli, Italy Nadira Ait-Ameur, Hemdane Yacine – ENSSMAL, Bois des Cars, Delly Brahim, Algeria

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The proposed research aims to combine traditional (ship collected) in situ data, glider observations and a large set of satellite observed variables to get insights into the Algerian basin circulation, dominated by the presence of very energetic mesoscale structures, characterized by meandering of the Algerian Current and isolated cyclonic and anti-cyclonic mesoscale eddies. In particular merging the glider sampling capabilities with satellite information will advance knowledge on mesoscale features overpassing the well-known in situ measurement limits in both space and time.

Main achievements and difficulties encountered

ABACUS project completed two Slocum deep glider missions along the monitoring line between Mallorca and the Algerian Basin. Along a total of four transects, ocean physical and biological features have been monitored from surface to 975m depth performing one deep CTD, O2 sensor and fluorimeter cast every 4Km. During the return leg of the first mission, a butterfly route has been inserted to sample an eddy evidenced by the AVISO altimetry and ratified by two SOCIB drifters. Water masses trapped into the eddy, mean radius, rotational speed, and track from origin to dissipation have been monitored using AVISO maps and glider data. Also, the glider track was overflowed by SARAL-ALTIKA satellite once during the first mission and twice, along two neighbor ground tracks, during the second mission. Technical problems encountered by the glider at sea (pumping, unexpected resets) caused two mission aborts; the excellent SOCIB-IMEDEA technicians readily solved these issues and assured the perfect accomplishment of the project.



Dissemination

Aulicino G., G. Budillon, B. Buongiorno Nardelli, Y. Cotroneo, S. Gana, D. Iudicone, L. Mortier, A. Olita, A. Pascual, A. Ribotti, S. Ruiz, P. Testor and J.Tintoré. Multiscale monitoring in Mediterranean with gliders: the Jerico TNA experience (ABACUS, FRIPP, GABS, MUSICS). JERICO Science Day, Brest, 27-28 April 2014.

6.2 Project CIEBIO

General Information

Proposal reference number	CALL_1_11, Agreement n° 12/1210185
Project Acronym (ID)	CIEBIO
Title of the project	Calibration and inter-calibration exercise of bio-geochemical sensors
Host Research Infrastructure	HCMR POSEIDON CAL
Access Starting date - End date	26/11/2012-30/11/2012
Name of Principal Investigator Home Laboratory E-mail address	Roberto Bozzano Consiglio Nazionale delle Ricerche roberto.bozzano@cnr.it
Additional users	Sara Pensieri, Consiglio Nazionale delle Ricerche, Via de Marini 6, 16149 Genoa (ITALY)

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The experiment addresses the main scope of performing a calibration and inter-calibration exercise of bio-geochemical sensors to be operationally and routinely deployed on off-shore marine observatories making part on a continuous basis of the marine monitoring network of the Mediterranean Sea. In particular, the first objective consists in enhancing the accuracy of the in-situ observations on a long term basis of dissolved oxygen, chlorophyll-a and turbidity in the Ligurian basin collected by a multi-parametric probes installed on the W1-M3A offshore observing system, constituted by the "ODAS Italia 1" spar buoy and by a close subsurface mooring. The opportunity to install carefully calibrated probes will improve the knowledge about the biogeochemical processes in the upper thermocline and can support with real-time quality controlled observations the developing biogeochemical forecast models for both the phases of assimilation and calibration/validation.

The W1-M3A observatory, together with the E1-M3A buoy moored in the south Aegean Sea and the E2-M3A buoy positioned in the South Adriatic, is part of the M3A network, developed within the framework of the MFSTEP project in order to answer to the needs of the Mediterranean Forecasting System of real-time physical and biogeochemical observations of the upper thermocline. Indeed, the possibility to use sensors calibrated with the same procedures installed on the different sites belonging to the M3A network makes feasible a comparison between the involved sites thanks to an homogenous database in order to verify at a quantitative level the observed differences and to enhance the quality of the in-situ observations.

Main achievements and difficulties encountered

The experiment allowed to obtain a calibration in laboratory and at sea for oxygen and fluorescence sensors. More in details in laboratory, the calibration of oxygen probes has been carried out in a tank (800x500x500 mm) furnished by an Haake N2 immersion circulator and two aerators. Two SBE43 oxygen sensors were tested together and Winkler chemical titration served as the reference standard for evaluating performance characteristics. Five calibration points (at 14°C – 17.7 °C – 20.2 °C) have been chosen and three samples for each point have been used for the Winkler analysis. During the one day cruise onboard the R/V Philia three water samples

were acquired for the evaluation of both oxygen and chl-a parameters. The results showed an underestimation of oxygen probes respect to Winkler samples with an average difference of about 0.43 ml/l for the laboratory test and 0.49 ml/l for the samples taken at sea. The chl-a calibration were performed by means of two reference of chlorella culture and eight concentration points of uranine solution in laboratory and with water samples at sea. The results showed a good agreement between tests in laboratory and in field and allowed to calculate a new scale factor for the analyzed sensors. The need of very steady temperature for the oxygen calibration and of accurate reference concentration for chl-a tests extended the schedule of the experiment and did not allow the calibration of turbidity sensors that has been postponed and performed later by HCMR team.

The "Calibration and inter-calibration exercise of bio-geochemical sensors project" in the framework of Jerico TNA allowed to perform a calibration of oxygen, chlorophyll-a and turbidity sensors both in laboratory and at sea. The achieved results showed several discrepancies between the calibration sheet provided by the manufacturer and the in-situ validation and evidence the need of a field calibration especially for chlorophyll-a and turbidity measurement before the deploying of the instruments.

Dissemination

(1) Bozzano R., G. Petihakis, S. Pensieri, T. Tsagaraki, M. Ntoumas and D. Podaras. Bio-geochemical sensors calibration and intercalibration exercise at POSEIDON calibration Laboratory of HCMR in Crete, <http://www.jerico-fp7.eu/news-rss/169-bio-geochemical-sensors-calibration-and-intercalibration-exercise-at-poseidon-calibration-laboratory-of-hcmr-in-crete>

(2) Puillat I., S. Sparnocchia, P. Farcy, R. Bozzano, M. Borghini, L. Coppola, S. Cusi, N. Medeot, R. Nair, M. Ntoumas, A. Olita, S. Pensieri, G. Petihakis, A. Ribotti, S. Ruiz, K. Schroeder and J. Tintore. JERICO: a Joint European Research Infrastructure network for Coastal Observatories supporting marine research in the Mediterranean Sea, 40th CIESM Congress, Marseille, Rapp. Comm. int. Mer Médit., 40, 149, 2013 (<http://www.ciesm.org/online/archives/abstracts/pdf/40/#>).

(3) Nair R., N. Medeot, F. Pantazoglou, G. Petihakis, R. Bozzano, S. Pensieri, D. Podaras, M. Potiris and M. Ntoumas. Results from 3 TNA calibration experiments (CIEBIO, RTC and TOFU). JERICO Science Day, Brest, 27-28 April 2014.

6.3 Project ECCECs

General Information

Proposal reference number	CALL_2_2, Agreement n° 13/1210695/BF
Project Acronym (ID)	ECCECs
Title of the project	Emerging Chemical Contaminants in European Coasts
Host Research Infrastructure	CNR MPL – MPLS, HZG COSYNA_1 (Lysbris ferrybox)
Access Starting date - End date	<u>CNR MPL MPLS</u> : 02/04/2014-28/06/2014 <u>HZG COSYNA_1 (Ferrybox Lysbris)</u> : 30/09/2014-27/10/2014
Name of Principal Investigator Home Laboratory	Dr. Jana Klanova Research Centre for toxic compounds in the environment – Environmental chemistry division, Kamenice 753/5, 62500 Brno, Czech Republic
E-mail address	klanova@recetox.muni.cz
Additional users	Luca Nizzetto and Miroslav Brumovsky, Research Centre for toxic compounds in the environment – Environmental chemistry division, Kamenice 753/5, 62500 Brno, Czech Republic

User project scientific field

Main field	Earth Sciences & Environment, Chemistry
Scientific description	Other – Environment, Chemistry

Project objectives

<p>O1) To provide a first continental scale, consistent assessment of emerging chemical contaminants occurrence and distribution in European coastal waters.</p> <p>O2) To assess the budget of selected chemical contaminants in the marine water column and investigate the mechanisms controlling their vertical distribution.</p>

Main achievements and difficulties encountered

<p>OBJECTIVE 1</p> <p>A successful 1 month-long campaign was performed by repeatedly collecting water samples from the Lysbris (Ferry box) in the North sea surface water. 48 sample were collected that were aggregated 4x4 based on geographic area (to achieve volumes sufficient for detecting trace chemicals in water). The original project foresaw only monitoring in the North sea for occurrence of emerging contaminants, but taking advantage of their presence on board of the CNR research vessel Urania during two cruises for objective 2, the user group managed to expand the scopes of the project, collecting about 20 samples across the Tyrrhenian sea, where the occurrence of emerging contaminants in marine surface water was targeted.</p> <p>Difficulties: In some situation, the automatic sampler used on board of the Lysbris failed to collect samples due to a mismatch between the set geographical coordinates for autonomous sampling and the actual route of the mobile infrastructure. It was difficult to predict the ship position with high accuracy. The captain often modified the route to take advantage of wind and stream conditions. This situation resulted in 16 sampling events lost. Thanks to the support of the access provider the user group compensated the loss by re-running the campaign 3 times, so collecting a sufficient number of samples.</p> <p>Originally two short accesses to the Lysbris (spring and autumn) were foreseen, but finally the</p>
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group opted to run a single autumn campaign only, repeating the sampling during three consecutive weeks. This change allowed them to focus better on their main objective: to provide a continental scale assessment of emerging contaminants in surface marine water.

OBJECTIVE 2

Five passive sampler cages containing each 3 silicon passive sampler sheets were deployed on mooring C1 in the Sicily channel on April 2nd, 2014 at depths of 220, 260, 310, 360 and 400 metres. The exposure time predicted was 6 months.

Passive samplers were used to pre-concentrate in-situ hydrophobic organic pollutants extracted from the water onto a simple flat stripe of silicon-based polymer. Individual silicone stripes were held in a support called spider inside of a stainless steel cage.

Difficulties: During an extraordinary control of the mooring after 3 months from the deployment, the CNR staff reported to the user group that their stainless steel cages suffered severe corrosion and one cage was lost. The group immediately opted for recovery in advance all samplers. The actual exposure time was of about 3 months, nearly half of the one originally set, however a sufficient time to accumulate a detectable mass of the pollutants. The samples were correctly handled by the CNR staff and shipped to RECETOX for the analysis.

This first attempt of using passive sampler cages in Mediterranean sea deep-water highlighted some technical problem with regard to the currently available materials for marine deployment. Based on this experience, the user group designed a totally new cage completely built in Titanium, that was deployed during a second campaign in autumn, outside the JERICO TNA program. A new set of two titanium cages with 3 silicon rubber sheet each, is currently attached on the MPLS mooring and will be collected in April 2015.

Dissemination

Brumovsky M. and L. Nizzetto. Legacy and Emerging Chemical Contaminants in European Coastal waters (ECCECs). JERICO Science Day, Brest, 27-28 April 2014.



6.4 Project FITO MicroLFA

General Information

Proposal reference number	CALL_2_4, Agreement n° 13/1210603/BF
Project Acronym (ID)	FITO MicroLFA
Title of the project	Field Test Of MicroLFA nutrients monitoring device for Ferrybox systems
Host Research Infrastructure	HZG COSYNA_1 and COSYNA_2
Starting date - End date	COSYNA_1 (Ferrybox Lysbris): 16/07/2014-25/09/2014 COSYNA_2 (Cuxhaven station site): 09/05/2014-04/07/2014; 06/08/2014-22/09/2014
Name of Principal Investigator Home Laboratory	Dr. Luca Sanfilippo SYSTEA S.p.a., Via Paduni, 2A 03012 Anagni (FR), Italy
E-mail address	luca.sanfilippo@systea.it
Additional users	Enrico Savino, SYSTEA S.p.a

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The proposed TNA project aims to test in operative conditions a new line of product specifically developed by SYSTEA S.p.A. to be extensively used in Ferrybox systems for unattended nutrients monitoring in sea and surface water. The field tests were performed in the facilities of Institute of Coastal Research / KOI of Helmholtz Zentrum Geesthacht (HZG), partner of Jerico project. Two kind of field tests were performed:

- a first field test was performed in the Cuxhaven fixed monitoring station at the Elbe river mouth, to measure PO₄ and NH₃
- a second field test was performed in the Ferrybox Lysbris managed by HZG, in operation on a regular route along North Sea.

Two independent analytical modules to measure PO₄ and NH₃ were provided and integrated in the existing system layout and local control unit on both sites; a third unit to measure PO₄ was dispatched, to change the first one for the second experiment on board of Lysbris. The first PO₄ unit module was later installed again in Cuxhaven station.

On both sites a comparison between existing instruments manufactured by SYSTEA and in use from several years by HZG were performed too.

SYSTEA provided the microLFA units already prepared to be installed and operated unattended. HZG allowed SYSTEA to install those units on both sites and provided the technical support during the field experiments.

Main achievements and difficulties encountered

Several weeks of unattended measurement on both NH₃ and PO₄ parameters were collected in both sites; the data results were elaborated by HZG and technically commented.

The installation and operation inside the Ferrybox Lysbris was difficult to be performed, due to the limited space available, but the compactness of the units to be tested allowed the integration and use on the running system.



Dissemination

- (1) Moschetta P., L. Sanfilippo, E. Savino, W. Petersen and H. Thomas. Field test of microLFA modules for on-line measurement of nutrients in Ship of Opportunity application. 6th FerryBox Workshop, Tallinn, 2014 (<http://www.ferrybox.org/dissemination/workshops/index.php.en>).
- (2) P. Moschetta, E. Savino and L. Sanfilippo. Field test of microLFA modules for on-line measurement of NH₃ and PO₄ in Ferrybox (FITO MicroLFA). JERICO Science Day, Brest, 27-28 April 2014.

6.5 Project FRIPP

General Information

Proposal reference number	CALL_3_1, Agreement n° 14/1211273
Project Acronym (ID)	FRIPP
Title of the project	FRontal dynamics Influencing Phytoplankton Production and distribution during DCM period
Host Research Infrastructure	CSIC-Glider
Access Starting date - End date	25/05/2014 - 30/05/2014
Name of Principal Investigator Home Laboratory	Dr. Antonio Olita Institute for Coastal Marine Environment of CNR, Unit in Oristano, Operational Oceanography Group (GOO) Località Sa Mardini, Torregrande, 09170 Oristano
E-mail address	antonio.olita@cnr.it
Additional users	Alberto Ribotti, CNR-IAMC, Oristano

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The proposed research is drawn in the eastern Alboran Sea, in coincidence with the strong density front at the eastern margin of the Eastern Alboran anticyclonic Gyre (Almería-Orán Front). Through a multi-sensor sea-glider mission supported by modeled and remotely-sensed data, the project aims to study the impact of frontal dynamics on the Phytoplankton production and distribution as inferred from fluorometric measurements. The mission was accomplished in concomitance to another multi-platform (Ship-based CTD, model, bottles analysis) experiment (already planned by IMEDEA) that contributed to have a wider and more complete data-base to study the processes of interest.

Main achievements and difficulties encountered

The proposed samplings were successfully performed. Adverse circumstances (not concerning the project itself) obliged PI to access the facility and the data only remotely. This did not compromise in any way the success of the sampling and the achievement of the results. Main objective (study the frontal role on distribution of phytoplankton during DCM period) was successfully achieved. The data have been processed together with other data sources.

Dissemination

Aulicino G., G. Budillon, B. Buongiorno Nardelli, Y. Cotroneo, S. Gana, D. Iudicone, L. Mortier, A. Olita, A. Pascual, A. Ribotti, S. Ruiz, P. Testor and J.Tintoré. Multiscale monitoring in Mediterranean with gliders: the Jerico TNA experience (ABACUS, FRIPP, GABS, MUSICS). JERICO Science Day, Brest, 27-28 April 2014.

6.6 Project GABS

General Information

Proposal reference number	CALL_1_8, Agreement n° 12/1210183
Project Acronym (ID)	GABS
Title of the project	Deep Glider Acquisitions between Balears and Sardinia
Host Research Infrastructure	CSIC-Glider
Access Starting date - End date	23/10/2012-30/10/2012 (mission aborted) 31/01/2013-16/03/2013 (1 st leg) 18/03/2013-22/03/2013 (user group at land facility) 15/10/2013-29/11/2013 (2 nd leg)
Name of Principal Investigator Home Laboratory E-mail address	Alberto Ribotti Institute for Coastal Marine Environment of CNR alberto.ribotti@cnr.it
Additional users	Antonio Olita Institute for Coastal Marine Environment of CNR

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The proposed research aims to identify the physical properties of the surface and intermediate water masses between the Balearic Islands and Sardinia. Objectives are, updated from the original proposal, to:

- i) study the seasonal variability of the physical properties of surface and intermediate water masses between the Algerian and the Provencal sub-basins;
- ii) assess the transport of water, salt and heat through the section;
- iii) validate the operational hydrodynamic numerical model of the western Mediterranean implemented at IAMC CNR UOS Oristano (<http://www.seaforecast.cnr.it/en/fl/wmed.php>) through the use of in-situ and satellite data;
- iv) investigate mechanisms of spring bloom triggering over a frontal area.

Main achievements and difficulties encountered

The main scientific achievement has been to understand the phytoplankton spring bloom onset by a density front. Additionally, a second achievement has been the possibility to work with and, consequently, meet the colleagues at IMEDEA. This will probably bring to future stricter collaborations between two laboratories located in two opposite sites of the Western Mediterranean. Then achievements regarded the possibility of acquiring oceanographic data during particularly strong Mistral/Sirocco wind events and compare them with different sea/wind conditions. Secondly, it was impressive to have data on the area several times a year avoiding expensive cruises.

Difficulties in the early mission from October 2012 (battery problems obliged to recover the instrument immediately) were solved in the January 2013 mission.



Dissemination

- (1) Cusí S., A. Ribotti, A. Olita, M. Martínez Ledesma, S. Ruiz, J. Tintore and S. Sparnocchia. Jerico TNA First Glider Mission (<http://www.jerico-fp7.eu/news-rss/149-jerico-tna-first-glider-mission>).
- (2) Puillat I., S. Sparnocchia, P. Farcy, R. Bozzano, M. Borghini, L. Coppola, S. Cusi, N. Medeot, R. Nair, M. Ntoumas, A. Olita, S. Pensieri, G. Petihakis, A. Ribotti, S. Ruiz, K. Schroeder and J. Tintore. JERICO: a Joint European Research Infrastructure network for Coastal Observatories supporting marine research in the Mediterranean Sea, 40th CIESM Congress, Marseille, Rapp. Comm. int. Mer Médit., 40, 149, 2013 (<http://www.ciesm.org/online/archives/abstracts/pdf/40/#>).
- (3) Olita A., S. Sparnocchia, S. Cusí, L. Fazioli, R. Sorgente, J. Tintoré and A. Ribotti. Observations of phytoplankton spring bloom onset triggered by a density front in NW Mediterranean, Ocean Sci. Discuss., 10, 1559-1580, 2013 (ocean-sci-discuss.net/10/1559/2013/).
- (4) Olita A., S. Sparnocchia, S. Cusí, L. Fazioli, R. Sorgente, J. Tintoré and A. Ribotti. Observations of a phytoplankton spring bloom onset triggered by a density front in NW Mediterranean. Ocean Sci., 10, 657–666, 2014 (www.ocean-sci.net/10/657/2014/).
- (5) Aulicino G., G. Budillon, B. Buongiorno Nardelli, Y. Cotroneo, S. Gana, D. Iudicone, L. Mortier, A. Olita, A. Pascual, A. Ribotti, S. Ruiz, P. Testor and J. Tintoré. Multiscale monitoring in Mediterranean with gliders: the Jerico TNA experience (ABACUS, FRIPP, GABS, MUSICS). JERICO Science Day, Brest, 27-28 April 2014.

6.7 Project GESEBB

General Information

Proposal reference number	CALL_1_7, Agreement n° 12/1210204
Project Acronym (ID)	GESEBB
Title of the project	Glider campaign to estimate the 3D structure of an Eddy in the Southeastern Bay of Biscay.
Host Research Infrastructure	CNRS / INSU CETSM (glider)
Starting date - End date	23/07/2013-24/09/2013
Name of Principal Investigator Home Laboratory E-mail address	Ainhoa B. Caballero Reyes Marine Research Division, Azti-Tecnalia acaballero@azti.es
Additional users	Anna Rubio Compañy, Julien Mader, Carlos Hernández and Luis Ferrer Rodríguez, Azti-Tecnalia.

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The experiment may allow to know in detail the vertical structure of a stationary anticyclonic eddy in the southeastern Bay of Biscay and its evolution during the two months of the campaign. If the stationary eddy is not sampled, both because it has not been developed or because we are not able to see it in remote sensing maps, the campaign may allow to sample in detail the vertical structures of the water column (stratification, thermocline...) over the shelf-slope area in a period which is especially interesting regarding the biological cycle of some of the key species for the fishery activity.

Main achievements and difficulties encountered

The main achievement of this mission was that the glider collected measurements with all the sensors and to the desired depth during the whole mission duration. A good communication with the pilots allowed to adjust the sampling design every Waypoint; this permitted to make decisions once gather all the last information from the glider itself and from the satellite measurements (IR, visible and altimetry). Campe glider crossed not only an anticyclonic structure but also at least other two cyclones. We are not sure yet if the measured anticyclone is the stationary eddy (the target structure of this mission) but if not this will surely not due to the sampling design, but to an absence of this type of structure during this year.

The main difficulty of this mission was that the first attempt was aborted (4 to 5 July 2013). This inconvenient together with the delay of the start date, due to an unavailability of a free glider-pilot in the desired time period, did not allow to sample the structure when its surface signal was more evident (April to July). Other difficulty encountered was that the months before the beginning of the mission were very cloudy in the Bay of Biscay and it was difficult to find not cloud-contaminated satellite images. Therefore, the central position of the target structure was not clearly identified and the first days of the mission (2 transects) were used to localize the anticyclonic eddy.



Dissemination

- (1) Caballero A., A. Rubio, J. Mader, C. Hernandez, L. Beguery and P. Testor. GESEBB glider Mission of the First TNA call of JERICO (<http://www.jerico-fp7.eu/news-rss/215-gesebb-glider-mission-of-the-first-tna-call-of-jerico>).
- (2) Caballero A., A. Rubio, L. Ferrer, J. Mader, U. Cotano and M. Santos. Southeastern Bay of Biscay mesoscale structures and their role in the physics and biogeochemistry. EUR-OCEANS Hot Topics Conference "A Changing Ocean", Gran Canaria, 2013 (http://www.eur-oceans.eu/sites/default/files/activities/2013/30488/EOC_2013_conference_booklet_web.pdf).
- (3) Caballero A., A. Rubio, J. Mader, C. Hernandez. GESSEB MISSION Preliminary results. EPIGRAM Workshop, Île de Ré, 2013.
- (4) Goikoetxea N., A. Caballero, A. Fontán, H. Arrizabalaga, L. Ferrer and J. Santiago. Juvenile albacore distribution and oceanographic conditions in the northeastern Atlantic during the 2013 fishing campaign. IV International Symposium of Marine Sciences, Las Palmas de Gran Canaria, 2013 (<http://ivcongresoccm.ulpgc.es/sites/default/files/BookofAbstracts.pdf>).
- (5) Caballero A., A. Rubio, J. Mader, C. Hernández and L. Ferrer. Glider campaign to estimate the 3d structure of an eddy in the southeastern bay of Biscay (GESEBB). ISOBAY 14 XIVth International Symposium on Oceanography of the Bay of Biscay, Bordeaux, 2014 (http://isobay14.epoc.u-bordeaux1.fr/documents/abstract_book_isobay14.pdf).
- (6) Caballero A., P. Testor, A. Rubio, C. Hernández and J. Mader. High resolution 4D oceanic measurements by gliders and process studies. 6th EGO Meeting and Final Symposium of the COST Action ES0904, Kunsthalle Kiel, Book of abstracts, p. 16, 2014 (<https://conferences.geomar.de/conferenceDisplay.py/abstractBook?confld=1>).
- (7) Goikoetxea N., A. Caballero, A. Fontán, H. Arrizabalaga, L. Ferrer, J. Santiago. Juvenile albacore distribution and oceanographic conditions in the northeastern Atlantic during the 2013 fishing campaign. Symposium "XVIII Simposio Ibérico de Estudios de Biología Marina", Gijón, 2014.
- (8) Caballero A., A. Rubio, J. Mader, C. Hernandez and P. Testor. Hydrography and fluorescence variability induced by 3 eddies, observed during the GESEBB mission. JERICO Science Day, Brest, 27-28 April 2014.

6.8 Project GLISS

General Information

Proposal reference number	CALL_1_13, Agreement n° 12/1210205
Project Acronym (ID)	GLISS
Title of the project	Passive sampling and glider technologies for depth-integrated contaminant concentrations in the ocean
Host Research Infrastructure	NERC COBS 4 POL GLIDER
Access Starting date - End date	02/09/2013-04/09/2013 (visit of the user group PI to land facility in UK) 12/09/2013-21/10/2013 (glider deployment)
Name of Principal Investigator Home Laboratory	Ian Allan Environmental chemistry, Section 312 Norwegian Institute for Water Research (NIVA) Gaustadalleen 21, NO-0349 OSLO
E-mail address	ian.allan@niva.no
Additional users	Branislav Vrana (RECETOX, Research Centre for Toxic Compounds in the Environment, Brno, Czech Republic.

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Other – Environment

Project objectives

To evaluate the possibility to deploy passive sampling devices fastened onto glider from the National Oceanographic Centre (NOC, Southampton, UK).

Main achievements and difficulties encountered

A successful deployment of silicone sheet passive sampling devices was undertaken in September-October 2013 near the Isles of Scilly. Samplers were recovered and brought back safely.
The original plan was to use a static sampling site to expose samplers for calibration of the data obtained from the mobile samplers. No static sampling sites could be found in the vicinity of the study site.

Dissemination

(1) Suberg L., R. B. Wynn, J. van der Kooij, L. Fernand, S. Fielding, D. Guihen, D. Gillespie, M. Johnson, K.C. Gkikopoulou, I.J. Allan, B. Vrana, P.I. Miller, D. Smeed, A.R. Jones. Assessing the potential of autonomous submarine gliders for ecosystem monitoring across multiple trophic levels (plankton to cetaceans) and pollutants in shallow shelf seas. *Methods in Oceanography* 10, 70–89, 2014.
(2) Nizetto L., I. Allan, and K. Sørensen. Unmanned tools for monitoring chemical pollution in coastal waters. JERICO Science Day, Brest, 27-28 April 2014.

6.9 Project MAPOM

General Information

Proposal reference number	CALL_3_2, Agreement n° 14/1211275
Project Acronym (ID)	MAPOM
Title of the project	Marine Aerosols Properties Over the Mediterranean
Host Research Infrastructure	CNR MPL – ACQUA ALTA
Access Starting date - End date	<u>In situ campaigns</u> : 05/05/2014-12/05/2014; 13/06/2014-20/06/2014; 22/09/2014-26/09/2014 <u>Remote access</u> : 13/05/2014-07/07/2014
Name of Principal Investigator Home Laboratory	Dr. Jacques Piazzola University of Toulon, Mediterranean Institute of Oceanography (MIO), BP 56, 83162 La Valette du var cedex, France
E-mail address	piazzola@univ-tln.fr
Additional users	Gilles Tedeschi, Tathy Missamou - MIO, University of Toulon, France

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Other – Environment

Project objectives

The aim of the present project is to advance the knowledge of the general cycle of aerosols in the atmosphere as a contribution to the meteorological scenarios in a climate change perspective. The specific activity is proposed as part of a 3 years French project dedicated to the development of a multi-scale approach using grid-nesting models for the atmospheric fate of the marine aerosol over the Mediterranean including its interaction with anthropogenic pollutant, impacting the radiative properties and effects on the meteorological processes. Aerosol data acquired in the targeted site and data from other locations in France will contribute to validate coupled (physics of weather and chemistry) models and to implement an accurate primary and secondary sea-spray source formulation using aerosol concentrations in the 0.01-50 μm size range.

Main achievements and difficulties encountered

Three experimental campaigns of seven days were made from May to September 2014. In addition supplementary data were acquired using remote acquisition of aerosol probes installed by the user group on board the CNR Acqua Alta Tower in the period from April to the first days of June. The experiments allowed acquisition of about 500 aerosol size distributions and also chemical samplings using a Dekati collector. No particular difficulty was encountered except some problems of an aerosol probe which failed during July. This problem has limited the remote acquisition during summer.

Dissemination

Piazzola J. and N. Mihalopoulos. Physicochemical characterisation of aerosols in the Adriatic Sea (MAPOM). JERICO Science Day, Brest, 27-28 April 2014.

6.10 Project MEDACID

General Information

Proposal reference number	CALL_1_1, Agreement n° 12/1210180/B
Project Acronym (ID)	MEDACID
Title of the project	Mediterranean Sea ocean acidification time series experiment
Host Research Infrastructure	HCMR Saronikos coastal buoy and HCMR calibration laboratory (POSEIDON BUOYS and POSEIDON CAL)
Access Starting date - End date	<u>POSEIDON BUOYS</u> (ULP sensor in place): 10/09/2013-8/12/2013; 18/02/2014-06/10/2014 <u>POSEIDON CAL</u> (sensor testing and cleaning): 04/03/2013-08/03/2013; 14/02/2014-19/02/2014; 13/10/2014-15/10/2014
Name of Principal Investigator Home Laboratory E-mail address	Melchor Gonzales-Davila Universidad de Las Palmas de Gran Canaria mgonzalez@dqui.ulpgc.es
Additional users	J. Magdalena Santana Casiano Universidad de Las Palmas de Gran Canaria

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

<p>Coastal waters are badly sampled for carbon dioxide and only some CO₂ sensors have been recently deployed along USA coastal waters and North of Europe. In this project, the user group deployed one of its pH sensors having a 0.001 pH unit reproducibility, on one of the buoy of the HCMR POSEIDON networks, placed in an important region as it is the east coastal Mediterranean seawater. Calibration experiments were also planned at the HCMR calibration facility. The project will add great value to: a) the development of pH measuring system, b) the monitoring of ocean acidification in the Mediterranean Sea and c) the JERICO project (both from the point of view of Trans National activities and co-operation and the development of novel and advanced measuring systems). The main objectives are to:</p> <ol style="list-style-type: none"> 1. Study the daily, monthly, seasonal and inter-annual pH variability in coastal waters. 2. Determine of the main controlling factors affecting the expected acidification. 3. Define correlations with physical, chemical and biogeochemical factors controlling the coastal area. 4. Verify the performance of the pH sensor in coastal areas and for long deployments. 5. Reinforce the relations between institutions working in linked activities.

Main achievements and difficulties encountered

<p>The photometric pH sensor deployed at the Saronikos site developed by the University of Las Palmas de Gran Canaria and nowadays commercialized by the company Sensorlab was transported, communication tested and proved at the HCMR facility in Crete, Greece during March 4-8th 2013 by the QUIMA professors in close collaboration with the HCMR group members. On September 10th, after deployment at the Saronikos buoy the sensor started to provide data in real time that were received by the HCMR and weekly sent to QUIMA. The installation, communication, deployment and data transmission processes were perfectly done</p>
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and excellent results were provided. At the beginning of December 2013, no data were provided by the pH sensor and the buoy was recovered, the sensor was picked up by one of the QUIMA members in Athens (18-19 Jan 2014), and transported to Gran Canaria where it was cleaned, an electrovalve was changed (this was the observed problem) and on February 14th the sensor was re-deployed using the Aegean Research Vessel with the participation of the two QUIMA researchers. CT-AT bottles for calibration purposes were sampled at the site. The sensor was recovered on October 6th 2014 and received at Crete by the two QUIMA researchers. After two hours of cleaning and checking the sensor is now ready for a next experience. By the first time, a photometric sensor was checked to work properly in a long deployment providing accurate data in real time. The sensor provided seasonal, monthly and daily data for surface waters at Saronikos bay.

Dissemination

González-Davila M. and J.M. Santana-Casiano. Seasonal pH variability in the Saronikos Gulf: a year study (MEDACID). JERICO Science Day, Brest, 27-28 April 2014.

6.11 Project METRO

General Information


Proposal reference number	CALL_2_1, Agreement n° 13/1210601/BF
Project Acronym (ID)	METRO
Title of the project	MEditerranean sediment TRap Observatory
Host Research Infrastructure	CNR MPL - MPLS
Access Starting date - End date	18/10/2013-08/11/2014
Name of Principal Investigator Home Laboratory	Dr. Anna Sanchez Vidal Universitat de Barcelona, GRC Geociències Marines, Facultat de Geologia c/Martí Franquès s/n, Barcelona Spain
E-mail address	anna.sanchez@ub.edu
Additional users	Antoni Calafat-Frau, Miquel Canals-Artigas, Aitor Rumin Caparrós, Anna Aymà Padrós. Universitat de Barcelona, GRC Geociències Marines, Facultat de Geologia c/Martí Franquès s/n, Barcelona Spain

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

<p>The main objective of the METRO (MEditerranean sediment TRap Observatory) project is to characterize the physical factors that drive the particulate carbon pump (which includes photosynthesis, particle settling and advection, and organic matter remineralization) at three key locations in the Western Mediterranean which are the Gulf of Lion, the Algero-Balearic basin and the Sicily Channel. The carbon pump causes sequestration of carbon dioxide in the deep sea due to the sinking of particles, thus an accurate quantification of the export flux of particulate organic carbon, and knowledge on physical processes affecting it during its descent to the seafloor (i.e. advection by strong currents), is fundamental for understanding its magnitude and efficiency. The University of Barcelona (UB) team has been monitoring carbon fluxes since 2009 in the Cap de Creus submarine canyon at 1000 m of water depth, and since 2012 in the Algero-Balearic basin at 2000 m of water depth. Data obtained by these two fixed platforms (near-bottom current speeds, temperature and salinity, particle fluxes) has allowed to investigate the biological (primary production) and physical processes (dense shelf water cascading,</p>
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convection, storms) that drive the flux of carbon to the deep sea floor. The third platform has been achieved through the integration of a sediment trap to the Sicily Channel mooring C01 maintained by CNR and offered by JERICO through the second Transnational Access call.

Main achievements and difficulties encountered

The University of Barcelona, together with the valuable help and expertise of the CNR-ISMAR, has recently successfully recovered the sediment trap integrated in the Sicily Channel mooring line. The recovery percentage of sediment trap samples has been satisfactory, with 23 samples recovered out of a maximum of 24 (i.e. 96% recovery rate). Treatment of samples (splitting of sediment trap samples in different fractions to perform analyses) is ongoing.

Dissemination

(1) Sánchez Vidal A., A. Rumin Caparrós, M. Borghini and K. Schroeder. JERICO TNA METRO (Mediterranean sediment TRap Observatory) project (http://www.jerico-fp7.eu/attachments/article/219/News_TNA_METRO_project.pdf).

(2) Sánchez Vidal A., A. Rumin Caparrós, M. Borghini, K. Schroeder and S. Sparnocchia. Particle fluxes in the Sicily Channel - Preliminary results from the JERICO TNA METRO (Mediterranean sediment TRap Observatory) experiment. JERICO Science Day, Brest, 27-28 April 2014.

6.12 Project MOSC

General Information

Proposal reference number	CALL_2_5, Agreement n° 13/1210604/BF
Project Acronym (ID)	MOSC
Title of the project	Monitoring Oxygen in the Sicily Channel
Host Research Infrastructure	CNR MPL - MPLS
Access Starting date - End date	02/04/2014 – 08/11/2014
Name of Principal Investigator Home Laboratory	Dr. Dominique Lefevre Mediterranean Institute of Oceanography, UMR 7294 Campus de Luminy 13288 Marseille Cedex 09, France
E-mail address	dominique.lefevre@univ-amu.fr
Additional users	Sana Ben Ismail, National Institute of Marine Sciences and Technologies, Tunis Laurent Coppola, Observatoire Oceanographique de Villefranche/Mer Deny Malengros, Mediterranean Institute of Oceanography, UMR 7294, Campus de Luminy

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

<p>Recent studies evidenced that climatic changes does not only occur at centenary and millenary scales, but may also occur at much shorter time scales.</p> <p>The Sicily Channel is an intermediate basin between the eastern and the western Mediterranean, which plays a central role in the thermohaline circulation of the Mediterranean.</p> <p>The main objective of the project Monitoring Oxygen in the Sicily Channel – MOSC is to integrate the dissolved oxygen concentration in the long term time series data in the Sicily Channel to track the water mass variability, the impact of the water mass change on the oxygen content and to estimate the time lag between the eastern (Sicily Channel) and the western (Corsica Chanel) basins of the Mediterranean Sea. For this purpose, two oxygen sensors have been installed at the bottom of the two sills in the Sicily Channel accessing the 2-mooring installations MLPS operated by CNR.</p>

Main achievements and difficulties encountered

<p>Prior deployment two optodes were mounted on two homemade data logger (SQUID). Both optodes were calibrated over 8 temperatures and 11 O₂ concentrations using laboratory facilities and applying the Uchida algorithm (Uchida et al. 2008). This is part of the metadata accompanying the sensor, but the embedded calibration coefficients have not been altered. Data correction was plan to be done post deployment to check for drift and quality control.</p> <p>Unfortunately, the 2 SQUID data logger deployed on the Sicily moorings did not work. One leaked and shortcut the power supply, causing breaking of the data logger. The other was recovered in good condition, but it was not possible to communicate with the data cartridge to download the data. Due to these problems, no data were recovered from the experiment.</p>





Dissemination

D. Lefevre, S. Ben Ismail, L. Coppola, M. Borghini and K. Schroeder. JERICO TNA MOSC (Monitoring Oxygen in the Sicily Channel) project (http://www.jerico-fp7.eu/attachments/article/219/News_TNA_MOSC_project.pdf).

6.13 Project MUSICS

General Information

Proposal reference number	CALL_3_7, Agreement n° 14/1211271/B
Project Acronym (ID)	MUSICS
Title of the project	Multi Sensor Investigation in the Channel of Sardinia
Host Research Infrastructure	CNRS / INSU CETSM (glider EUDOXUS)
Access Starting date - End date	15/08/2014: The glider left the facility and was shipped to the mooring point by R/V Thetys. 16/08/2014-19/09/2014 (glider deployment, 3 trips from Sardinia to Northern Tunisian coasts and return) 23/09/2014: The glider is back to CETSM facility after recovery
Name of Principal Investigator Home Laboratory	Dr Daniele Iudicone Stazione Zoologica A. Dohrn, Laboratory of Ecology and Evolution of Plankton - Villa Comunale, 80121, Napoli, Italy
E-mail address	iudicone@szn.it
Additional users	Slim Gana – SAROST SA, Tunisia Maurizio Ribera d'Alcalà – SZN, Italy Antonio Olita – CNR IAMC, Oristano - Italy Bruno Buongiorno Nardelli – CNR IAMC, Napoli - Italy

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The proposed research aims studying mesoscale dynamics and water exchanges in the Channel of Sardinia, a key region for the comprehension of the exchanges between the Eastern and Western Mediterranean basins. A combined approach will be adopted using glider observations, sea surface height observation by satellite altimetry and numerical modeling.

Main achievements and difficulties encountered

Fortunately, no difficulties was encountered during the execution of the project thanks to a suitable coordination between all the partners and the facility staff. A collection of an important oceanographic database was carried out, in a key region of the Mediterranean sea, i.e. the Sardinia Channel.
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Dissemination

Aulicino G., G. Budillon, B. Buongiorno Nardelli, Y. Cotroneo, S. Gana, D. Iudicone, L. Mortier, A. Olita, A. Pascual, A. Ribotti, S. Ruiz, P. Testor and J.Tintoré. Multiscale monitoring in Mediterranean with gliders: the Jerico TNA experience (ABACUS, FRIPP, GABS, MUSICS). JERICO Science Day, Brest, 27-28 April 2014.

6.14 Project o-DGTSPOCME

General Information

Proposal reference number	CALL_1_4, Agreement n° 12/1210203
Project Acronym (ID)	o-DGTSPOCME
Title of the project	Organic - Diffusive Gradient in Thin-film for sampling polar organic chemicals in marine environment
Host Research Infrastructure	NIVA Color Fantasy and HZG COSYNA_2 (Cuxhaven station site)
Access Starting date - End date	<u>Color Fantasy</u> : 16/09/2013-03/11/2013 <u>Cuxhaven station</u> : 19/09/2013-29/10/2013
Name of Principal Investigator Home Laboratory E-mail address	Kevin C. Jones Lancaster Environment Centre, Lancaster University k.c.jones@lancaster.ac.uk
Additional users	Hao Zhang, Prof. in Environmental Chemistry, LEC, Lancaster University, UK, h.zhang@lancaster.ac.uk, Chang'er Chen, PhD student, LEC, Lancaster University, UK, c.chen3@lancaster.ac.uk

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Environment

Project objectives

<ol style="list-style-type: none"> 1. To test the o-DGT samplers for applications in seawater to measure polar organic chemicals like antibiotics; 2. To deploy the DGT samplers in pilot studies aboard the ferries (collaborated with NIVA) and at the fixed station (collaborated with HZG); 3. To estimate the water flow rate on the measurement of o-DGT in the flow through sampler and in the estuary; 4. To compare o-DGT sampler with another passive sampler-ceramic dosimeter (CD); 5. To investigate the spatial distribution of polar pollutants in the sea between Oslo and Kiel; 6. To prepare publications and consider a joint bid for further funding embracing wider applications.
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Main achievements and difficulties encountered

<p><u>Achievements:</u></p> <ol style="list-style-type: none"> 1. Found a better deployment solution for ferrybox under the colleagues from NIVA, that is using plastic net to hold the samplers which can separate the samplers but can also deploy batch of samplers together (which is easy for retrieving later); 2. Deployed and retrieved all the samplers deployed in the ferrybox. Six antibiotics were detected in the ferry o-DGT samples but only 4 antibiotics in the CD samples. The results show that o-DGT cannot continuously accumulate antibiotics after 27 days; spatial distribution along this color line cruise was observed for some antibiotics, seems higher levels near the ferry stations (Oslo and Kiel). 3. Successfully deployed the o-DGT samplers in the fixed station (Elbe river estuary) with the DGT holders designed by colleagues from HZG, and retrieved all the o-DGT samplers. Nine antibiotics were detected in the o-DGT samples, with 3 in the CD samples. Most antibiotics can be continuously accumulated until about 27days. A DBL of 320 um was obtained in this



river mouth.

Difficulties encountered:

1. Refill the chambers with pure water after retrieve samplers every time;
2. (bio)fouling for longer deployment time in the ferrybox (> 30 days) and fix station (> 20 days)
3. Lost some CD samplers or the cap opened and the resin come out in the fix station, a better way to protect the dosimeter is needed.

Dissemination

(1) Chang'er Chen. JERICO TNA sampling polar organic chemicals in marine water with organic –diffusive gradient in thin-film (o-DGT) (<http://www.jerico-fp7.eu/news-rss/226-jerico-tna-sampling-polar-organic-chemicals-in-marine-water-with-organic-diffusive-gradient-in-thin-film-o-dgt>)

(2) Chen C., Nizetto L., Zhang H., Jones K., Sorensen K., Profrock D. and W. Petersen. Testing o-DGT for passive sampling polar organic pollutants in marine environments with 'Chem-Mariner' in ferrybox and in fixed station (o-DGTSPOCME). JERICO Science Day, Brest, 27-28 April 2014.

6.15 Project OXY-COR

General Information

Proposal reference number	CALL_1_9, Agreement n° 12/1210184
Project Acronym (ID)	OXY-COR
Title of the project	Integration of dissolved oxygen concentration measurements in the long term time series data in the Corsica Channel
Host Research Infrastructure	CNR MPL - MPLC
Access Starting date - End date	20/11/2012-25/11/2014
Name of Principal Investigator Home Laboratory E-mail address	Laurent Coppola Oceanographique de Villefranche/Mer coppola@obs-vmfr.fr
Additional users	Dominique Lefevre Mediterranean Institute of Oceanography

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The Levantine Intermediate Water (LIW) is the warmest and saltiest water resulting from the dense water formation processes that occur in several zones of the Mediterranean Sea. This water mass is formed in the Levantine basin and circulates from the Eastern basin to the Western basin through the Sicilian Strait. In the Northwestern basin, the Corsica Channel is a strategic site where a branch of the LIW is passing through before reaching the DYFAMED site (cyclonic circulation). From previous time series data, a time lag has been observed in term of T-S change in the LIW level. To solve this issue, regular and long term oxygen measurements might provide a good opportunity to understand and to estimate accurately this time lag. This also gives us the possibility to quantify the variability versus anomalies of the LIW property due to the climate change already observed in the Mediterranean Sea. In summer 2012, the DYFAMED mooring located in the Ligurian Sea between Nice and Calvi has been equipped with two DO sensors (optode 4330F) at 400 m and 2000 m depth (MOOSE-GE cruise). The objective of the access is to complete the oxygen observation in the Ligurian Sea by implementing a DO sensor on the CC mooring (located at the east of the DYFAMED mooring) at the core of the LIW water mass (400 m depth). The collected data will provide information to track the water mass variability, the impact of the water mass change on the oxygen content and to estimate the time lag between the eastern (Corsica Channel) and the western (Dyfamed) part of the Ligurian Sea.

Main achievements and difficulties encountered

An optical dissolved oxygen sensor (OPTODE 3975 Aanderaa) was installed on November 20, 2012 in the underwater station at 400 m depth during a maintenance cruise (EUROFLEETS12) on board the research vessel URANIA of CNR. The sensor remained in the location until October 22, 2013, when it was replaced with a second sensor (OPTODE 4330 Aanderaa). The latter remained on the mooring until November 25, 2014, when it was finally recovered. Both the sensors used were connected to a SBE16plus probe which logged the data. The main difficulty of the experiment was a malfunctioning of the communication between the SBE16plus probe and the Optode 4330 which prevented to get useful data in the second measuring period.





Dissemination

- (1) K. Schroeder, L. Coppola, M. Borghini, D. Lefevre and S. Sparnocchia. JERICO TNA Dissolved Oxygen measurements in the Corsica Channel (<http://www.jerico-fp7.eu/news-rss/159-jerico-tna-dissolved-oxygen-measurements-in-the-corsica-channel>).
- (2) Puillat I., S. Sparnocchia, P. Farcy, R. Bozzano, M. Borghini, L. Coppola, S. Cusi, N. Medeot, R. Nair, M. Ntoumas, A. Olita, S. Pensieri, G. Petihakis, A. Ribotti, S. Ruiz, K. Schroeder and J. Tintore. JERICO: a Joint European Research Infrastructure network for Coastal Observatories supporting marine research in the Mediterranean Sea, 40th CIESM Congress, Marseille, Rapp. Comm. int. Mer Médit., 40, 149, 2013 (<http://www.ciesm.org/online/archives/abstracts/pdf/40/#>).
- (3) Coppola L., K. Schroeder, S. Sparnocchia and M. Borghini. Dissolved oxygen variability of the LIW in the Ligurian Sea (OXY-COR TNA results). JERICO Science Day, Brest, 27-28 April 2014.

6.16 Project RAD

General Information

Proposal reference number	CALL_2_3, Agreement n° 13/1210602/BF
Project Acronym (ID)	RAD
Title of the project	Radiometry Assessment of optical Data for ocean color applications
Host Research Infrastructure	CNR MPL – ACQUA ALTA
Access Starting date - End date	Remote access 12/03/2014-27/06/2014 In situ visits 12/03/2014-14/03/2014 21/06/2014-27/06/2017
Name of Principal Investigator Home Laboratory	Dr. Kai Sørensen Norsk Institutt for Vannforskning – NIVA, Department of Oceanography and Remote sensing, Gaustadalleen 21, NO-0329 Oslo, Norway
E-mail address	kai.sorensen@niva.no
Additional users	Pierre.Jaccard, Emanuele Reggiani (NIVA) Giuseppe Zibordi (JRC)

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The proposed activity is intended to support the assessment of optical radiometric in situ measurement commonly applied to support satellite ocean color multi-mission programs. Primary objective of the proposed activity is the inter-comparison of manned (micrPRO), semiautomatic (TriOS-RAMSES) and autonomous (CIMEL) radiometric instrumentation measurements to generate methods and protocols for the generation of high quality in situ radiometric data products. This will improve the measurement protocols for optical above water radiometric measurements on ships of opportunity to be used in satellite data product validation, and development of bio-optical algorithms for preparation for the new Sentinel satellite validation programs.

Main achievements and difficulties encountered

The project was carried out according to the plan without any major problem except for a few-day data handling issue at the beginning of operations. Calibration of TriOS sensors was performed at JRC before and after the period of measurements. The experiment was ended during an extended field inter-comparison of optical radiometers with additional international teams from different research institutions (i.e., Institute of Oceanology of the Polish Academy of Science, University of Massachusetts Boston and Royal Belgian Institute of Natural Sciences). This is expected to further extend the project visibility and scientific return.

Dissemination

Jaccard P., G. Zibordi and K. Sørensen. Radiometry for ocean colour validation from fixed and moving platforms (RAD). JERICO Science Day, Brest, 27-28 April 2014.

6.17 Project RTC

General Information

Proposal reference number	CALL_1_5, Agreement n° 12/1210181
Project Acronym (ID)	RTC
Title of the project	Reference Temperature Calibration
Host Research Infrastructure	OGS-CTO
Access Starting date - End date	25/02/2013-01/03/2013
Name of Principal Investigator Home Laboratory E-mail address	George Petihakis HCMR Calibration Laboratory gpetihakis@hcmr.gr
Additional users	Manolis Ntoumas, Fotis Pantazoglou HCMR

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

The purpose of the experiment is to acquire expertise, receive guidance, and gain “hands-on” experience in applying the procedures and Best Practice conventions for the calibration of oceanographic temperature sensors using primary reference standards. The OGS-Oceanographic Calibration Centre (OGS-CTO) is the oceanographic testing and calibration facility of the Department of Oceanography of the OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), located in Trieste (Italy). It provides the scientific and technical infrastructure necessary for high-quality observations of the marine environment using procedures that repeatedly meet recognized international standards of excellence. The ability to calibrate and maintain sea-going instrumentation efficiently is fundamental for the quality of their services. The long-term goal is for HCMR to be able to perform such calibrations on its own premises. This is essential in order to ensure the quality of the data collected by the POSEIDON network (<http://poseidon.hcmr.gr>) and field surveys performed by HCMR.

Main achievements and difficulties encountered

HCMR has established an in-house calibration laboratory for the evaluation and calibration of its oceanographic sensors and instruments. For the calibration of the temperature sensors, two standard platinum thermometer(s) manufactured by Seabird Electronics, Inc. and a large temperature-controlled bath are employed. However, for proper calibration, the reference standard platinum thermometer(s) should be maintained within specifications by linearization, slope and offset adjustments using primary temperature standards (ITS-90 fixed points). The calibration of oceanographic temperature sensors using primary temperature standards requires expertise, and is a delicate and labour-intensive process, often associated with heavy costs for the operators. The HCMR calibration lab does not currently employ this calibration procedure. The JERICO RTC TNA provided the opportunity to validate and calibrate the two references thermometer(s) which will be used as secondary reference standards for the HCMR calibration laboratory.



Dissemination

(1) Ntoumas M., R. Nair, N. Medeot, F. Pantazoglou and G. Petihakis. JERICO TNA Reference Temperature Calibration (RTC) experiment at the “Centro di Taratura Oceanografica” (CTO) of the OGS in Trieste (<http://www.jerico-fp7.eu/news-rss/181-jerico-tna-reference-temperature-calibration-rtc-experiment-at-the-centro-di-taratura-oceanografica-cto-of-the-ogs-in-trieste>).

(2) Puillat I., S. Sparnocchia, P. Farcy, R. Bozzano, M. Borghini, L. Coppola, S. Cusi, N. Medeot, R. Nair, M. Ntoumas, A. Olita, S. Pensieri, G. Petihakis, A. Ribotti, S. Ruiz, K. Schroeder and J. Tintore. JERICO: a Joint European Research Infrastructure network for Coastal Observatories supporting marine research in the Mediterranean Sea, 40th CIESM Congress, Marseille, Rapp. Comm. int. Mer Médit., 40, 149, 2013 (<http://www.ciesm.org/online/archives/abstracts/pdf/40/#>).

(3) Nair R., N. Medeot, F. Pantazoglou, G. Petihakis, R. Bozzano, S. Pensieri, D. Podaras, M. Potiris and M. Ntoumas. Results from 3 TNA calibration experiments (CIEBIO, RTC and TOFU). JERICO Science Day, Brest, 27-28 April 2014.

6.18 Project SESAM

General Information

Proposal reference number	CALL_1_6, Agreement n° 13/1210589/BF
Project Acronym (ID)	SESAM
Title of the project	Standardised Electrochemical in Situ Assessment of Metal Coatings
Host Research Infrastructure	CNR MPL Genoa
Access Starting date - End date	Exposure of bare samples: 05/11/2013-14/04/2014; 29/04/2014-21/11/2014 Ageing tests: 01/10/2013-07/01/2014; 13/01/2014-14/04/2014; 29/04/2014-28/07/2014; 01/08/2014-31/10/2014 User group at the facility (experiment set-up and test): 01/07/2013-05/07/2013; 08/07/2013-09/07/2013; 02/09/2013-04/09/2013; 07/01/2014-10/01/2014; 14/04/2014-17/04/2014; 28/07/2014-01/08/2014; 23/09/2014-24/09/2014; 03/11/2014-10/11/2014; 10/12/2014-12/12/2014
Name of Principal Investigator Home Laboratory	Edith Joseph Université de Neuchâtel, Laboratoire de Microbiologie, Rue Emile-Argand 11, CH-2000 Neuchâtel, Switzerland
E-mail address	edith.joseph@unine.ch
Additional users	Emilio Cano, Ministerio de Economía y Competitividad-Centro Nacional de Investigaciones Metalúrgicas, Madrid, Spain Monica Albini, Université de Neuchâtel, Laboratoire de Microbiologie, Neuchâtel, Switzerland

User project scientific field

Main field	Material Sciences
Scientific description	Other - Material Sciences

Project objectives

<p>The main objectives of the project are 1) to perform electrochemical impedance measurements for assessing the effectiveness of innovative protective treatments in comparison with nowadays used ones and 2) to develop a standardized electrochemical methodology for in situ measurements. To a larger extent, this project will contribute to a better conservation-restoration of metallic artefacts based on the advances gained in the application of electrochemical techniques and to extend the knowledge on efficacy of biological interventions. To this end, the interaction with outdoor environment of several metals used in monuments and ornamentation is enlightened by taking advantage of a standard exposure site in a highly corrosive environment due to urban-marine atmosphere. Through this, the overall idea is, at long-term, to enhance research in the field of metal conservation-restoration by promoting a dialogue among conservators and scientists, to encourage the use of electrochemical techniques as well as new treatments based on clear scientific and ethical criteria (efficiency, harmless, respect of the aesthetic and historical values) and to enhance conservation activities in their social and economical aspects with the development of ready-to-use conservation-restoration products.</p>



Main achievements and difficulties encountered

During the access allocated, the user group activities were accomplished according to the defined working plan that was overall respected. Meetings were organized at the beginning and end of the access time at the CNR MPL Genoa facility: Kick-off meeting on 1st July 2013 and Concluding meeting on 10th December 2014.

Within Task 1, the samples were properly aged and presented a typical natural patina from an urban-marine environment. All data collected for the characterization of the patina formed are currently analysed in order to assess the corrosion behaviour of the different alloys exposed. Within Task 2, the efficiency of some protective treatments was evaluated and users paid regular visits in order to perform the foreseen in situ measurements: 01-05/07/2013, 08-09/07/2013, 02-04/09/2013, 23-24/09/2014, 07-10/01/2014, 14-17/04/2014, 28/07-01/08/2014, 03-10/11/2014 and 10-12/12/2014. Within Task 3, most of the measurements were performed in remote at the users' institutions and the obtained results were discussed by means of videoconferences.

As outcomes, the project led to a better understanding of outdoor corrosion processes (Task 1), a validation of an innovative biological treatment for conservation-restoration (Task 2) and a definition of a protocol for in situ electrochemical measurements (Task 3).

It's worth saying that thank to a cost-neutral extension to one year that was allocated to the initial 130-days TNA grant, the difficulties that may have been encountered in successfully achieving the foreseen tasks within a period of 130 days were hence overcome.

Dissemination

(1) Joseph E., P. Letardi, L. Comensoli, A. Simon, P. Junier, D. Job and M. Woerle. Assessment of a biological approach for the protection of copper alloys artefacts. In Conference Proceedings of Metal 2013, Interim Meeting of the ICOM-CC Metal WG. Edinburgh, Scotland. 16th-20th September 2013. E. Hyslop, V. Gonzalez, L. Troalen, L. Wilson (Eds.), Historic Scotland, Edinburgh, 2013; ISBN 9781849171427, 203-208.

(2) Joseph E., P. Letardi, M. Albin, L. Comensoli, W. Kooli, L. Mathys, E. Domon Beuret, L. Brambilla, C. Cevey, R. Bertholon, D. Job and P. Junier. Innovative biological approaches for metal conservation. In Conference Proceedings of EUROCORR 2014, European Corrosion Congress. Pisa, Italy. 8th-12th September 2014. DECHEMA e.V., Frankfurt and AIM – Associazione Italiana di Metallurgia, Milano, 2014; ISBN 9783897461598, 1-10.

(3) Joseph E., M. Albin, P. Letardi, E. Domon Beuret, L. Brambilla, L. Mathys, C. Cevey, R. Bertholon, D. Job and P. Junier. BIOPATINAS: Innovative biological patinas for copper-based



artefacts. In Conference Proceedings of Outdoor Metallic Sculpture from the XIXth to the Beginning of the XXth Century: Identification, Conservation, Restoration. Paris, France. 4th-5th

December 2014. ICOMOS France, Paris, 2014; ISBN 9782905430182, 154-162.

(4) Albini M., L. Comensoli, L. Brambilla, E. Domon Beuret, W. Kooli, L. Mathys, P. Letardi and E. Joseph. BIOPATINAS: Innovative biological approaches for metal conservation. Special issue of the Eurocorr WP21, Materials and Corrosion (IF 1.208), submitted.

(5) Joseph E., E. Cano, P. Letardi and M. Albini. Standardised Electrochemical in Situ Assessment of Metal Coatings (SESAM). JERICO Science Day, Brest, 27-28 April 2014.

6.19 Project TOFU

General Information

Proposal reference number	CALL_3_4, Agreement n° 14/1211276
Project Acronym (ID)	TOFU
Title of the project	new Tools for Oxygen, Fluorescence and tUrbidity sensors testing and intercomparison
Host Research Infrastructure	HCMR POSEIDON CAL
Access Starting date - End date	19/07/2014-02/08/2014
Name of Principal Investigator Home Laboratory E-mail address	Roberto Bozzano Consiglio Nazionale delle Ricerche roberto.bozzano@cnr.it
Additional users	Sara Pensieri, Consiglio Nazionale delle Ricerche Via de Marini 6,16149 Genoa (ITALY)

User project scientific field

Main field	Earth Sciences & Environment
Scientific description	Marine Science/Oceanography

Project objectives

<p>The project aims at testing innovative software and hardware tools to inter-compare sensors for oxygen, fluorescence and turbidity measurements.</p> <p>For the test of oxygen sensors CNR developed a hardware/software tool able to simultaneously acquire up to 8 oxygen probes in the same calibration tank without the need of several multiparametric probes hosting the sensors, but simply one CTD instrument to acquire temperature and salinity data to be used as reference. The tool allowed for the acquisition of the raw voltage output of all sensors and for performing an inter-comparison in physical units devoted to the verification or the update of the calibration coefficients (or only the drift) provided by the manufacturer and to an evaluation of the performance of different type of oxygen sensors.</p> <p>The second objective of the proposed project aims at testing a package for the inter-calibration of multiple fluorescence and turbidity sensors in the same chamber acquiring real time data simultaneously by all sensors and with the same known chlorophyll/turbidity concentration.</p> <p>Both new tools allowed for the calibration of sensors based on an inter-comparison with reference probes and Winkler titration for dissolved oxygen, with chlorella and fluorescence dye solutions diluted with distilled water for fluorescence acquisitions and with Formazine diluted with deionized water for turbidity data.</p> <p>All sensors used in the experiment provided by CNR are operationally and routinely deployed on the W1-M3A offshore observatory and this contributes to the long term monitoring of biological parameters in the Mediterranean Sea.</p>

Main achievements and difficulties encountered

<p>The experiment allowed to test two new different software and hardware tools for laboratory calibration/inter-comparison of oxygen and fluorescence/turbidity sensors.</p> <p>The oxygen probes test was carried out in the HCMR calibration tank equipped with an immersion circulator and two aerators. The developed tools allowed the simultaneous comparison of four SBE43 oxygen sensors using only one CT(D) measurement as reference instead of using one CT(D) sensor for each oxygen probe without being able to check dissolved oxygen values in real time. Using such configuration, several calibration points, also with different sensors set-up, were performed, thus optimizing the time needed for reaching a steady</p>

temperature inside the tank.

The new chamber used to test fluorescence/turbidity sensors was an efficient tool allowing the simultaneous acquisition of multiple devices. Real-time raw voltage and counts measurements of the sensors under test were acquired using the ad-hoc developed software tool. Hence, several different concentrations were used in a shorter time with respect to use of a chamber hosting only one sensor each time.

The new developed tools and the facilities provided by HCMR proved to be really efficient and particularly useful for calibrating sensors before the deployment and for testing sensors after the recovery (i.e., verifying and correcting any offset or drift in the data).

No particularly difficulties have been encountered and the working program was done as planned except for the sea trial that was not performed due to bad weather conditions at sea.

Dissemination

(1) Pensieri S., R. Bozzano, M. Ntoumas, M. Potiris, D. Podaras and G. Petihakis. New Tools for Dissolved Oxygen, Fluorescence and Turbidity Sensors Testing and Intercomparison. 7th EuroGOOS Conference “Operational Oceanography for sustainable Blue Growth”, Lisbon, 2014 (<http://eurogoos.eu/download/7th%20EuroGOOS%20Conference%20ABSTRACTS.pdf>).

(2) Nair R., N. Medeot, F. Pantazoglou, G. Petihakis, R. Bozzano, S. Pensieri, D. Podaras, M. Potiris and M. Ntoumas. Results from 3 TNA calibration experiments (CIEBIO, RTC and TOFU). JERICO Science Day, Brest, 27-28 April 2014.

7. Concluding remarks

JERICO has organized and closed three Calls for Transnational access during its lifetime (from May 2011 to April 2015). Nineteen, out of a total of twenty-four submitted proposals, were selected by an independent Panel of Experts, and the related projects were supported under the TNA program. The operators of the involved JERICO facilities contributed to the projects by providing the necessary in loco logistical, technological and scientific assistance, including specific training when needed, required for their realization.

Most of the user groups were from academia (universities or research institutions), except one which represented a small company that manufactured analyzers for measuring chemical parameters in fresh and marine water. Two user groups included scientists from non-EU countries (Tunisia and Algeria).

The user projects were oriented towards both scientific research and technological applications, and some of them specifically addressed the issue of testing/validating new sensors/sampling methods using the available JERICO platforms.

ECCECs, o-DGTSPOCME and GLISS tested novel passive water samplers, based on polymeric membranes, for in-situ measurements of polar organic chemicals in the marine environment, and investigated the distribution of contaminants in the areas covered during the testing. The three projects evaluated the performance of the samplers with different observing setups, integrating them in Ferrybox systems, fixed platforms and gliders.

FITO MicroLFA and MEDACID were aimed towards ameliorating the performance of instrumentation developed for marine chemistry measurements. FITO MicroLFA tested in operative conditions a new product line specifically developed by the user group to be extensively used in Ferrybox systems for unattended nutrient monitoring in sea and surface water. MEDACID tested a pH sensor developed by the user group at a very oligotrophic site. Besides the contribution to the development of the measuring system, the experiment also provided data to study the daily, monthly, seasonal and inter-annual pH variability in the area.

SESAM is the only project implemented by a team working in a scientific field other than that of the Earth Sciences & Environment. The user group is involved in studies in Material Sciences, and used a marine station located in the harbor in Genoa (Italy) to carry out research on innovative protective treatments of metallic artefacts in an urban/marine site characterized by extreme aggressiveness.

Three projects, CIEBIO, RTC and TOFU, addressed sensor calibration issues, relating also to some bio-geochemical sensors. These were important capacity building exercises in the developing field of marine metrology.

Combining measurements of gliders offered by JERICO for Transnational access with other platforms, ABACUS, GABS, GESEBB, FRIPP and MUSICS, carried out studies on mesoscale and frontal dynamics. GABS, GESEBB and FRIPP also investigated the impact of these structure on plankton. User groups and facility operators involved in ABACUS, GABS and MUSICS organized a



joint meeting in Esporles (Mallorca, Spain) from 29 to 30 January, 2015, to discuss common issues concerning data processing and a shared strategy for the scientific exploitation of the gathered observations.

The remaining projects were also science-oriented. METRO integrated a sediment trap into an existing observing system in the Sicily Channel (Mediterranean Sea) to study the particulate carbon pump of the Western Mediterranean. OXY-COR and MOSC had a common objective: that of adding oxygen observations to two fixed platforms, situated in a couple of key areas of the Western Mediterranean, namely, the Sicily Strait and the Corsica Channel. The underlying idea was to use these new observations to track the variability of water masses, its impact on the oxygen content and, complementing ongoing measurements in the Ligurian Sea, to estimate the time lags of water exchanges in the basin. Unfortunately, the equipment installed within the framework of MOSC failed, so the objective was only partially attained. MAPOM was proposed as part of a 3-year French project dedicated to the development of a multi-scale approach using grid-nesting models for studying the fate of marine aerosol in the atmosphere over the Mediterranean. Aerosol probes were installed in the northwestern Adriatic Sea to enrich the database of similar measurements collected from other locations in France to better validate coupled (weather physics and chemistry) models, and to implement an accurate primary and secondary sea-spray source formulation. RAD provided in situ optical radiometric measurements to support satellite ocean color multi-mission programs.

Coastal observatories are quite complex as they can include different types of observing systems (e.g. ferryboxes, fixed platforms, gliders, among others) and supporting facilities (e.g. calibration laboratories). Naturally, this diversity poses a challenge when streamlined access to such infrastructures is being contemplated. The JERICO consortium had to work hard to define a coordinated general scheme for managing the sharing of its resources with a wide user community. The activities developed in the framework of the TNA program in JERICO are helping to build long-term collaborations between users and access providers, and are serving to promote innovation and the transfer of know-how in the marine sector. Moreover, besides extending the influence of the networked coastal infrastructures beyond national borders, the outcomes of the TNA calls evidence the major existing client communities and their scientific and technological needs, and also highlight the services amongst those offered that are the most in demand at the present time. This information can help to set priorities for future development of the network, but it should also pave the way for services and marketing strategies to attract new user communities.

The JERICO TNA program will be improved and consolidated in the newly awarded H2020 project, JERICO-NEXT, widening the offer of observing infrastructure to target more users (novel observing technologies and different monitored environments, including physical, chemical and biological components).



Appendix I - TNA Project Report Template

A) General Information

Proposal reference number ⁽¹⁾	
Project Acronym (ID) ⁽²⁾	
Title of the project ⁽³⁾	
Host Research Infrastructure ⁽⁴⁾	
Starting date - End date ⁽⁵⁾	-
Name of Principal Investigator ⁽⁶⁾ Home Laboratory E-mail address Telephone	
Additional users ⁽⁷⁾	

B) Project objectives (max. 250 words)⁽⁸⁾

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C) Main achievements and difficulties encountered (max. 250 words)⁽⁹⁾

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D) Dissemination of the results⁽¹⁰⁾

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E) Use of the Infrastructure/Installation⁽¹¹⁾

	In situ	By remote
Nr. of Users involved		
Access units (days/months/etc)		
In situ stay day / Remote Access duration		

F) User project scientific field

Main field ⁽¹²⁾	
Scientific description ⁽¹³⁾	

H) Technical and Scientific preliminary Outcomes (max. 2 pages)⁽¹⁴⁾

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Guidelines for the TNA Project Report

This report is due within one month after the completion of the JERICO TNA project by the User Group Leader (P.I.) and should be submitted to the **JERICO TNA Office** (jerico.tna@ismar.cnr.it) and the **Scientific Site Coordinator** at the hosting facility with a copy to the **JERICO Coordinator** (jerico@ifremer.fr).

An online "user group questionnaire" has also to be completed by each **Group Leader** of a user-project supported under JERICO as soon as an experiment has come to an end - you will find it here: http://cordis.europa.eu/fp7/capacities/questionnaire_en.html#fnote.

NOTES:

Refunding of the TA reimbursement will be processed as soon as the JERICO TNA Office, the Scientific Site Coordinator and the JERICO Coordinator will received this report.

Part of the information collected with this report will be used to fill in the European Commission MS Access database. Following article 4.4.2, the User Group PI will be asked by the JERICO Coordinator to update it at the reporting deadlines.

Notes for the compilation

1. It is the reference number assigned to the proposal by the TNA-Office.
2. It is the user-project identifier and must be unique under the grant agreement and for its lifetime. The length cannot exceed 20 characters.
3. Specify a title for the approved proposal. The length cannot exceed 255 characters.
4. Name of the installation/infrastructure accessed with this project. If more than one. installations/infrastructures are used by the same project; please list them in the box.
5. Specify starting and end date of the project (including eventual preparatory phase before the access).
6. Fill with the full contact of the Principal Investigator (user group leader).
7. List the full users team (name and affiliation) that made direct use (physically or remotely - please specify) of the installation/infrastructure under the direction of the group leader.
8. Write the short-term, medium and long-term objectives of project. Use no more than 250 words.
9. Describe briefly the main achievements obtained and possible impacts, as well as possible difficulties encountered during the execution of the project. Use no more than 250 words.
10. Describe any plan you have to disseminate and publish the results resulting from work carried out under the Transnational Access activity in JERICO: scientific articles, books - or part of them -, patents, as well as reports and communication to scientific conferences, meetings and workshops. Highlight peer-reviewed publications. Users supported under the transnational access activity are encouraged, as far as possible, to make available on open repositories their publications. Acknowledgement to EC and JERICO is requested following article 4.5 of the "End-User" Agreement.
11. Indicate the number of users involved in the activity (the P.I. plus the users described at point 6), the amount of access to the installation/infrastructure and the length of in-person stay at the installation or the operator laboratory (e.g. for preparing the experiment).
12. See Annex, First column.
13. See Annex, Second column.
14. Describe in detail results and main findings of your experiment at the present stage.



User-Project Scientific fields

Main field	Scientific description
Physics	Astronomy/Astrophysics/Astroparticles Atomic & molecular physics Condensed matter physics High energy and particle physics Nuclear physics Plasma physics Quantum electronics & optics Other - Physics
Chemistry	Chemistry
Life Sciences & Biotech	Food quality & safety Agriculture & Fisheries Medicine Veterinary sciences Molecular & cellular biology Other - Life Sciences & Biotech
Earth Sciences & Environment	Global Change & Climate Observation Ecosystems & Biodiversity Natural Disaster & Desertification Marine Science/Oceanography Water Science Hydrology Other – Earth Science Other – Environment
Engineering & Technology	Aeronautics Space New production processes Nanotechnology & Nanosciences Transport Other - Engineering & Technology
Mathematics	Mathematics
Information & Communication Technologies	IST for citizens, businesses & organizations Trust & Security Communication & Networks Computing & software technologies Components & Micro-systems Knowledge & interface technologies Other - ICT
Material Sciences	Knowledge based multifunctional materials Other - Material Sciences
Energy	Sustainable energy systems Fusion Other - Energy
Social Sciences	Economics Political Sciences Educational sciences Law Demography Other - Social Sciences
Humanities	Arts Hystory Languages Other - Humanities

1