Joint European Research Infrastructure network for Coastal Observatories

Jerico Community Hub D6.2

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

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1. Document description

REFERENCES

Annex 1 to the Contract: Description of Work (DoW) version 2011-02-22

Document information	
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2. Executive Summary

This report relates to SubTasks 6.1.1. 'Design and Build of the JERICO Community Hub; and 6.1.3. 'Provision of data from JERICO observing systems onto public display'.

Based on consultation with JERICO partners and users, the Jerico Community Hub has been designed, developed, and implemented; http://www.jerico-fp7.eu/. The website provides access to information and outputs from the whole JERICO project to date and other related projects and initiatives (e.g. EMECO, Ferrybox). The Jerico Community Hub encompasses the Jerico OceanBoard (Task 6.2), forums, project information, news and Transnational Access (WP8) information and calls. The site also contains a link to a page describing the Jerico Datatool that will be developed in the coming months (T6.1.2.). The site is integrated with a content management system (CMS) to allow easy content uploading. Initial content for the website and the OceanBoard (WP6.3) has been developed and loaded into the website and the site is live.

A specific work plan was agreed at the Steering Group meeting in January 2012 to develop software to enable FerryBox operators to publicly display their observations and outreach information to passengers and crew on their ferries. Work is being carried out by the National Oceanography Centre, Southampton (NOCS) in conjunction with Sveriges Meteorologiska Och Hydrologiska Institut (SMHI). In addition NOCS will work with Blue Lobster to present the data transmitted to shore in near real time on the JERICO Community Hub (JCH) webpages and the operation of the individual pages will link to the JERICO data tool and EMECO web pages.

A prototype FerryBox web display has been created by NOCS. The details of the project progress are provided in the body of this report. A preliminary example of data displayed from the route of the SHMI FerryBox has been generated.

3. Introduction

Based on consultation with JERICO partners and users, the Jerico Community Hub (JCH) was designed, developed, and implemented. Key components of the JCH are the OceanBoard, project information and Transnational Access (TNA) information (WP8). The site will provide access to the Jerico Datatools, which are scheduled for development in the next phase of the project.

A temporary website containing key project information was set up and launched in July 2011. This was replaced by the JCH in January 2012 (www.jerico-fp7.eu). The Jerico OceanBoard was launched in March 2012 (www.jerico-fp7.eu/oceanboard).

The key functionality for the Jerico OceanBoard was agreed between the University of Malta (UoM) Blue Lobster, Cefas and Ifremer in October 2011. The agreed features and functionality were:

- An attractive visual design
- User-friendly access to content
- Ability to classify content into Jerico Professional or Jerico Public
- Ability for users to log in and leave comments (This will be administered by UOM)
- Ability to link to other partner websites and news boards
- Latest articles to appear as a news feed that users will be able to click on to access the full articles
- Ability to upload the following content types:
    - News articles
    - Events
    - Articles with attachments e.g. images, datasets, video clips
    - Features
    - Reports
    - Animations and video clips
    - Images

It was also agreed that the content would be facilitated by the UOM who would act as a "news agency" and upload all content to the OceanBoard.

The agreed OceanBoard functionality was developed between October 2011 and December 2011 and the OceanBoard was launched in March 2012.

The initial TNA content was agreed between Blue Lobster, CNR and Ifremer and uploaded to the JCH in November 2011. The first call was published on the JCH in January 2012.

Ifremer provided the official Jerico logo and banner in December 2011 and the final website design was integrated into the JCH in January 2012. Following approval between the Jerico partners, the design was launched in January 2012.

A specific work plan was agreed at the Steering Group meeting in January 2012 to develop software to enable FerryBox operators to publicly display their observations and outreach information to passengers and crew on their ferries. Work is being carried out by the National Oceanography Centre, Southampton (NOCS) in conjunction with Sveriges Meteorologiska Och Hydrologiska Institut (SMHI). In addition NOCS will work with Blue Lobster to present the data transmitted to shore in near real time on the JERICO Community Hub (JCH) webpages and the operation of the individual pages will link to the JERICO data tool and EMECO web pages.

A prototype FerryBox web display has been created by NOCS. The details of the project progress are provided in the body of this report. A preliminary example of data displayed from the route of the SHMI FerryBox has been generated.

4. Main Report

1.1. Part 1 – Jerico Design

The Jerico logo and banner were designed by IFREMER and supplied to the Jerico Community Hub developers (Blue Lobster) in December 2011. The JCH was designed to be sympathetic to the logo and banner, attractive to users and provide easy access to information on the site. There is a top and left navigation and a « Quick Links » section in the footer to allow easy navigation around the site. There is a login area for registered users and a « Latest News », « Latest Events » and « Latest Articles » feed on the right of the page to provide users with the latest information (Figure 1).

Figure 1: Jerico Community Hub Homepage.

1.2. Part 2 – Jerico Project Information

The project area of the JCH provides information about the project and its work-packages that is available to both partners and non-partners. The site is loaded with initial content that will be developed further by the Jerico partners as more information becomes available.

All partners are registered as Project Users that allows partners to share and view information and documents that are not accessible to the public.

1.3. Part 3 – Jerico TNA

The Jerico TNA section is part of the project information (www.jerico-fp7.eu/tna). The pages contain information about the Access Facilities, Access Rules and Calls and Selection Criteria. The first call was announced on the JCH and details of how to submit a proposal were supplied. The submitted projects were made available following closure of the call.

There is also a TNA user set up where the TNA selection committee, the WP8 leader and the project coordinator can log in and download the submitted projects for the call.

1.4. Part 4 – Jerico OceanBoard

The Jerico OceanBoard page (www.jerico-fp7.eu/oceanboard) provides easy access to the two main components; Jerico Professional and Jerico Public (Figure 2).

Figure 2: Jerico OceanBoard page providing easy access to Jerico Professional and Jerico Public sub categories.

Within Jerico Professional and Jerico Public there are 6 sub categories; General, Mediterranean Sea, North Sea, Baltic Sea, Iberian Area and Black Sea (Figure 3).

Figure 3: Access to the six sub categories within Jerico Professional and Jerico Public.

Within each sub category is a list of articles available and the ability to share on Social Media platforms e.g. Facebook, Twitter) (Figure 4).

Figure 4: List of articles currently available within Jerico Public General sub-category with option to share on Social Media platforms.

Each article is an interactive environment where users are encouraged to register and leave a comment. Comment are administered by the University of Malta and once approved can be made public (Figure 5).

Figure 5: Example of a Jerico OceanBoard article with an image, link, options to share on Social Media Platform and the option to register and add a comment about the article or previous comment.

Partners who are registered as OceanBoard users can upload new content containing, text, images, file attachments, videos, news articles and events. This enables regional OceanBoard coordinators to upload new content as it becomes available throughout the project.

1.5. Part 5 – Jerico Datatools

The Jerico Community Hub will provide access to the Jerico Datatool. The Jerico Datatool will display selected Service Access (WP7) data. The data will be selected by the partners in November 2012. The Tools will be launched subsequently.

1.6. Part 6 – FerryBox web display

The specific work plan and definition for SubTask 6.1.3 (DoW title) was agreed at JERICO Steering Group Meeting, January 2012:

Provision of data from JERICO observing systems onto public display monitors/information hubs including enhancement of NERC-NOCS FerryBox passenger display

a) Software will be developed that will enable FerryBox operators to publicly display results from their observations and outreach information to passengers and crew on their ferries. The work will be based around a common template into which individual operators will be able to add the data and other information they choose to display by attaching their own files within the template.
b) A common feature of the displays will real time information on the position of the ferry superimposed on cartographic displays chosen by the user.
c) The software code will be developed by the National Oceanography Centre, Southampton (NOCS) working with Sveriges Meteorologiska Och Hydrologiska Institut (SMHI) who will provide access to data streams from their route. SMHI will
    i. choose the data to display
    ii. provide data on the range limits of the data
    iii. provide appropriate cartography and
    iv. provide accompanying outreach pages.
d) The format of the display will follow an agreed JERICO style sheet.
e) The system will be tested at NOCS using a near real time data feed from SMHI using ftp data transfer.
f) SMHI will install appropriate equipment on their ferry for use of the software.

g) Mikael Suominen or another member of NOCS will visit and work with SMHI to install the system on their ferry.
h) A user manual will be prepared to enable other partners to use the template.
i) In addition NOCS will work with Blue Lobster to present the data transmitted to shore in near real time on the JERICO Community Hub (JCH) webpages.
j) The JCH will link to pages the template for which will be developed by NOCS as part of T6.1.3. The user of the Hub will be able to access pages for the individual routes that have been populated by the route operator. These pages will be menu based and allow the user to
    i. choose the ferry,
    ii. discover the operational status of the ferry
    iii. provide a Wiki on the operator's work (provided by the operator)
    iv. choose to down load periods of data
    v. display data in a basic set of time series plots either, chosen property time plots at a chosen location on the route or Hovmoeller location, time, property maps of the whole route.
k) The operation of the individual pages will link to the JERICO data tool and EMECO web pages being developed by Blue Lobster.
l) A user manual will be prepared to enable other partners to use the JCH web display template.

Progress Report 8 May 2012 (6 man/months allocated to task) Monthly periods

Progress from start to 24th Feb 2012

1. Read notes from SMHI about their data format and opinions on the system.
2. Wrote code to parse SMHI data.
3. Wrote code to do a basic plot of SMHI data using PHP's GD image functions.
4. Investigated use of jpGraph library for plotting (discarded for not enough control over individual datapoints).
5. Investigated use of Google Maps / Google Earth for plotting (discarded as there is no offline option; may revisit for web portal viewing).
6. Wrote a more detailed prototype to take an arbitrary image and plot the data on it, with colour variance to display another variable (in this case temperature) per point.
    - This essentially covers the "Display Processor" part of the diagram, with some overlap with "Display Templates" and "Data Importer".
    - It is a heavily hard-coded prototype at the moment; customisable by changing a set of variables at the start of the file, but not yet properly configurable.

7. Put this prototype onto a page with code to switch between it and another image, proof of concept of the slideshow-style display anticipated.

Progress to 23rd March 2012

1. Tightened the prototype
    - Automatically scales to the space available based on the variable limits, for testing
    - Much more error checking, deals with edge cases (1 point, looping back on itself, point stacking)
2. Added a proper debug option to output important variables
3. Wrote a 'config' file to allow customisation of many of the default options
    - Allows definition of an arbitrary number of slides
    - Slides may be map plots showing different variables or datasets
    - Allows definition of which colours to use in plotting the "track" variable
        i. Can be block colours or blending between band points
        ii. Point size / line width is configurable
    - Background image, HTML overlay and some presentation variables (margins etc) can be defined
4. Annotated a copy of the config file to act as documentation-in-code
    - Will form the basis of proper documentation later
5. Setup an XAMPP apache/php install for other users
    - On a USB stick
    - Discussed how the server / client split works and what code goes where
6. Downloaded and investigated GEBCO data for providing a proper, auto-generated backing map
    - Tried binary (netCDF) and ASCII data, both look possible
    - Investigated use of the ImageMagick library to reduce memory expenditure
    - Discarded for now due to complexity, may be revisited later
    - Investigated use of Java / Tomcat for the server creating the plots
    - Would reduce need to re-plot the same thing, may have resource benefits
    - Probably unnecessary and overcomplicated given environment control

Progress to 8th May 2012

1. Created plots using the 26/27 Sept 2011 small data set provided by SMHI. Example shown in Figure 6 below.
    - Maps exported from the GEBCO grid viewer
    - Integrated these into a slideshow
    - Slides do not update yet, they are created at startup and are unchanged from there.

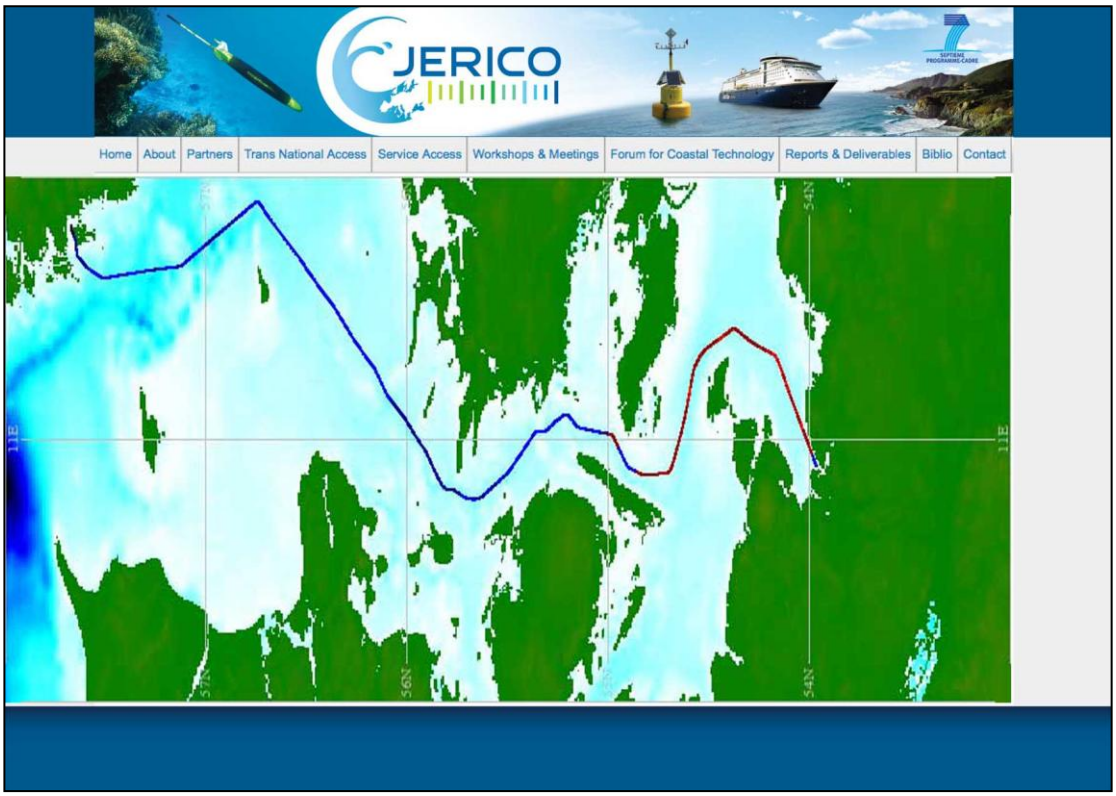

Figure 6: Preliminary example of data displayed from the route of the SMHI FerryBox. Image shows the track followed by the ferry with the track colour coded to represent the surface seawater temperature measured by the Ferry.

2. Investigated the automated creation of background images by stitching together 1' pre-rendered squares
    - This speeds up plotting considerably at the cost of disk space
    - Fast enough to be done on the fly, opening the possibility of automatically scaling plot areas

3. Set up a MySQL database with a structure to hold datapoints ready for plotting
    - This is an internal structure, storing:
        i. Positions, along with the time this position was taken
        ii. Sensors, along with their units and description
        iii. Datapoints, each being a reading associated with a given sensor at a given position
4. Partially completed a module to import data from TSV format to the database.

5. Conclusions

The Jerico Community Hub has been designed, developed and launched and is a live and operational environment. The content will continue to develop throughout the project life. Blue Lobster will continue to support users of the JCH and host and maintain the application.

Development of the Datatools will begin during the next phase of the project, but they will not be launched until the data they will display has been selected and imported into the tools.

Data from JERICO observing systems are being provided by SMHI and NOCS and a public display of NERC-NOCS Ferrybox data is under development. Work has been carried out to design a new template for a ship-based and web-based Ferrybox passenger/web-user display programme. Code is being written that runs the display programme on both the web and ship for built-in flexibility, allowing easy changes to content and format. User interactivity will be designed with a web display programme. NERC-NOCS Ferrybox web pages will comply with the Jerico Community Hub and the passenger display. The aim is to establish guidelines and pave the way for other Ferrybox operators (and for operators of other observing platforms) to set up similar end-user information systems. The application developed will have the potential for application elsewhere.