Minutes from JERICO meeting, Helsinki 23 April 2013

Prepared by M. Haller and W. Petersen

Agenda

13:00: <u>Best practice for FerryBox systems: (Part of deliverable D4.4)</u>

(focus of discussion should be on clarification which items should be in which deliverable)

Structure of the input to D4.4 (Lead: Kai)

- Discussion about best practice

- Installation of a new FB (From D 3.1. + updates)

- Maintenance (From D4.4)

- Calibration, validation (From D4.2 + input BGC- report from MyOcean, from WP5?)

- Anti(bio)fouling (From D4.3)

14:00: <u>FerryBox data handling</u>

- FerryBox data quality control algorithm in MyOcean (Pierre Jaccard)

- FerryBox data QA (Task 10.5) (Mark Hartman)

- FB data management system (Should we have this in WP4? See structure from George D4.4. Input from WP5? Or is this covered in WP5?)

15:00: Coffee Break

15:30: <u>Status of development of new physico-chemical sensors (Task 10.2)</u>
(should be kept short as extensive presentation will be given on the FB-workshop following days)

- T10.2.1.: Contaminants (Hydrocarbons, passive samplers,) Kai Sorensen

- T10.2.2.: Algal pigments (variable fluorescence, absorption,….) Jukka Seppälä, Bengt Karlson

- T10.2.3.: Carbonate system (spectrophotometric pH, alkalinity, pCO2) Kai Sorensen, Willi Petersen

16:45: Break

17:00: <u>Status of JERICO User Display (JUD) (Task 6.1.3)</u>
(Mark Hartman)

17:30: <u>Preliminary discussion on the COST project</u> & use of FBs as MFSD observatory (Patrick Farcy)

Participants

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JERICO Workshop

13:00 Introduction of all participants

Introduction of the agenda by Wilhelm Petersen

Best practice for FerryBox systems

13:15 Talk by Kai Sorensen

- Input from George Petihakis (WP4 leader):
    - How to proceed in terms of D3.1 and D4.4, i.e. what should be included in D3.1 and what in D4.4?
    - According to DoW, D3.1 should focus on technology, D4.4 on operation and maintenance.
    - Deliverable titles:

        D3.1 Report on current status of Ferrybox

        D4.4 Report on best practice in conducting operations and maintaining

        Thus we could focus in D3.1 on a description of what the situation is in EU in terms of FB (and consequently for the other platforms in D3.2 and D3.3) and move the best practice and harmonization of all the platforms in the D4.4.
- Subtasks in WP3

    In WP3 description for Tasks 3.1, 3.2 and 3.3 there are subtasks on
    – the current status,
    – best practices and
    – harmonization (not in T3.2)
    but this does not necessarily mean that each respective deliverable has to include all the subtasks!
    However, if the deliverable will look small or there will be not much information, what we could do in D4.4 is to leave out best practice and focus on the second and third objectives written in the DoW.

Discussion:

i. It was agreed, that there is a certain overlap between WP3 and WP4, especially in terms of the different deliverables D4.4 and D3.1. However, D3.1 is already delivered. The main goal of WP 3 & 4 is to help institutes to operate their measurement systems. At the end of the project, we should have a kind of handbook specific for each platform about existing systems in Europe, recommendations for new installations and best practice for operating. D3.1 deals with a review of existing Ferryboxes, new sensors (linked with WP10), common procedures for calibration and technical aspects of installing a Ferrybox.

ii. D3.2 and D3.3 are on the way (due in month 15 and 21) but should be coordinated with D4.4 to minimize overlap. D4.4 is dedicated to deal more about operation and maintaining of different systems (Ferrybox, Glider, Fixed Platform).

iii. The deliverables in WP3 are divided in different platform types whereas D4.4 should address all systems. But it can be subdivided in three chapters for each platform type.

iv. Willi: D3.1 is delivered, but should it be updated?

v. D4.2 is a report on calibration best practices and should be handled generally independent on different platforms. Only special platform-depending calibration issues could be integrated in the report

vi. Willi/Kai: Task 4.3 should be main point of D4.4, to describe best practices in all phases of the system (pre-deployment test, maintenance, calibration etc.):

- to adopt common methodologies and protocols;

- move towards the harmonisation of equipment which will help in reducing maintenance and calibration costs

vii. D4.1 has been delivered, next main point is D4.4, include most things in D4.4, except calibration of new sensors which is in D4.2

viii. Structure of D4.4 -> Kai/George, draft has been circled around by George

Kai: update structure of D4.4, and then send it around, who is in it? → Ifremer, NOCS?, NIVA, SYKE

Summary:

As there are overlaps between WP3 and WP4, we agreed that the concerning deliverables will focus on technology (D3.1, D3.2, and D3.3) whereas D4.4 reports on best practice in operation and maintenance. D4.1 has been delivered and deals about existing calibration facilities. D4.2 should report about best practices of calibration, independent of platform type. It is due on month36.

Ferrybox data handling

Talk by <u>Pierre Jaccard</u>: Ferrybox data handling in MyOcean

- Introduction of MyOcean: collect all real-time data of European seas, perform data control, output to end-users
- Overview of Ferrybox lines included in MyOcean (operating/not in operation)
- Challenges: bugs, changes in data delivery, missing meta data, more user-friendly data processing!
- In future Biogeochemistry issues:
  - Focus on Chl-a and oxygen
  - Additional delivery of temperature and salinity data for oxygen calculations
  - Additional calibration information
- SeaDataNet and MyOcean exchanging data
- Data are in netCDF-format
- MyOcean Quality control:
  - real-time and delayed mode -> based on ARGO manuals (ARGO, 2009)
  - Delayed mode product for 4 parameters (Temperature, salinity, oxygen, fluorescence)
  - ARGO specific tests, vertical profiles tests, common tests (e.g. parameter relationship test), Ferrybox specific tests (e.g. speed range test, pump test), regional test
- Links with JERICO in WP 5.2/5.8,5.5,5.1/5.6

Discussion:

i. Mark/Willi/Kai/Seppo:
- How data are handled (e.g. outliers, impact on flag)?
- How is feedback to operator by MyOcean? Important! **When meta-data are missing, faults in data cannot be explained by MyOcean**

ii. Patrick: Bridge between SeaDataNet (dedicated to delayed mode), MyOcean and Jerico has to be improved!

iii. Bengt: Is ARGO document available?

  → http://www.coriolis.eu.org/Media/Medias-Coriolis/Files/Documents/Reports/Argo-Data-Management/Reference-Argo-Documentation (older version V2.1)
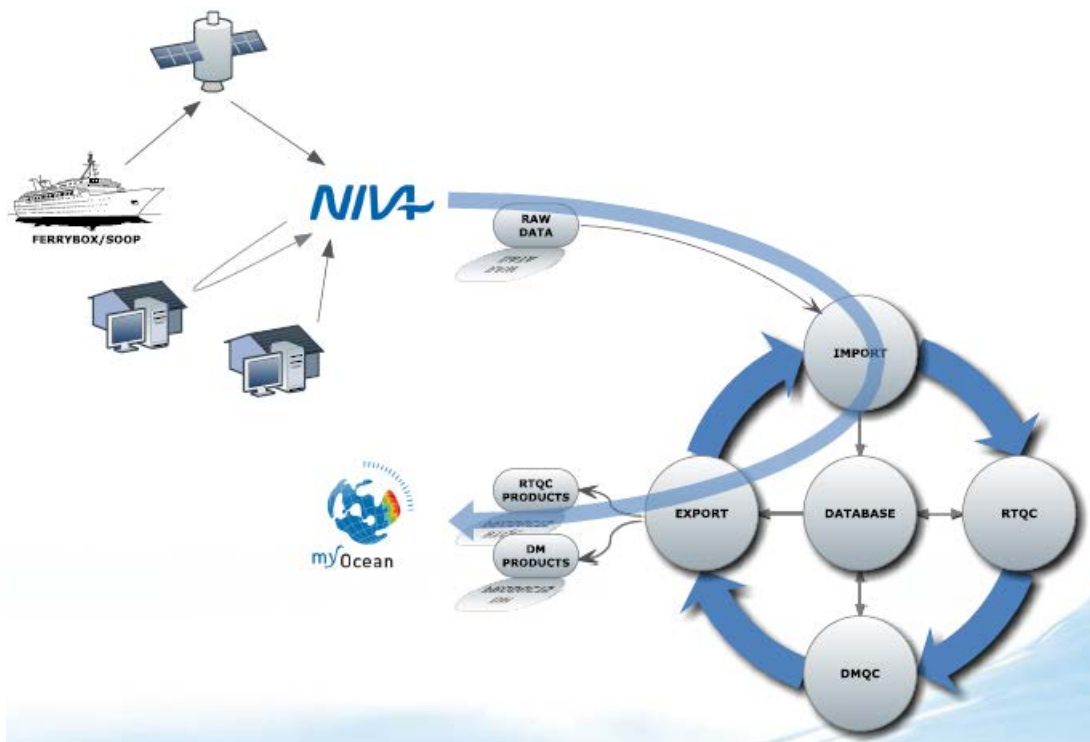
  New version (V2.6) will be circled around on demand!

Figure 1: Scheme of MyOcean data processing and Ferrybox links (from talk of P. Jaccard).

Short Information about MyOcean data

16:00 Pierre Jaccard

At MyOcean they have started getting data from research vessels, so that could be interesting also for JERICO partners (Willi/Dave).

- Who is using MyOcean data?

Pierre: The user community is increasing:

- Business partners
- Universities
- private persons

However, it is not clear which data they use, there is no real control when data are at global data center.

- Are they of use for forecasts?

Only when they are real-time data. That depends on the ships, and how fast the data are at MyOcean.

Talk by <u>***Mark Hartman:***</u> ***Ferrybox data quality control algorithm (Task 10.5)***

- Review of data processing at partner institutes (WP3 & WP4)
    - Request of contact details of responsible persons
    - Limited feedback, more is needed. The more the merrier!
- Development of optimised algorithms for data processing at partner institutes, e.g. in order to facilitate utilisation
- Develop Matlab routines (mainly for delayed mode)
- Challenges:
    - Communication between partners, definition of quality control labels, task set for optimisation of algorithms, meta-data are needed!
    - More feedback from partners!

Discussion:

i.   Willi/Bengt: Is Matlab code already available, e.g. for enhancing/checking?

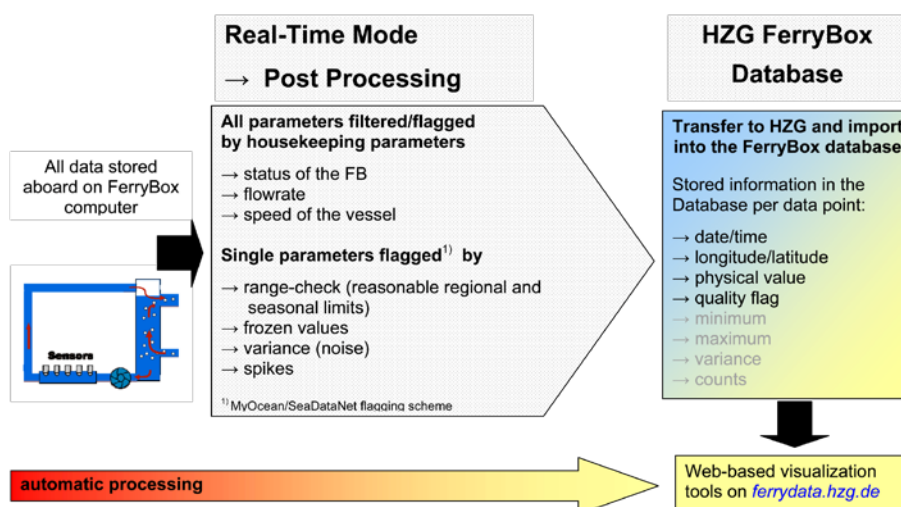ii.   Is there already a pool of code for quality control, is there a FB portal? -> so far not

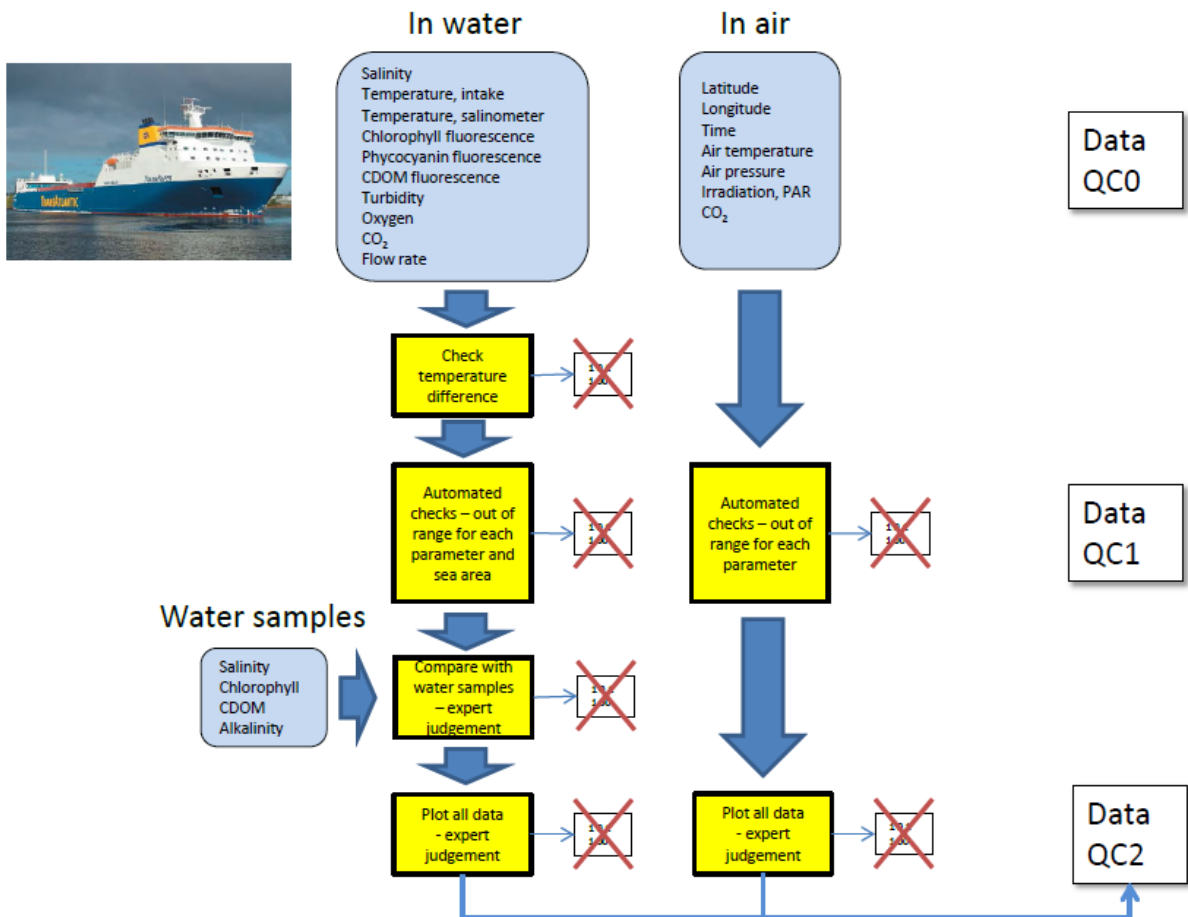**Figure 2: HZG scheme for quality control of Ferrybox data.**

Figure 3: SMHI scheme for quality control of Ferrybox data (from talk of M. Hartman).
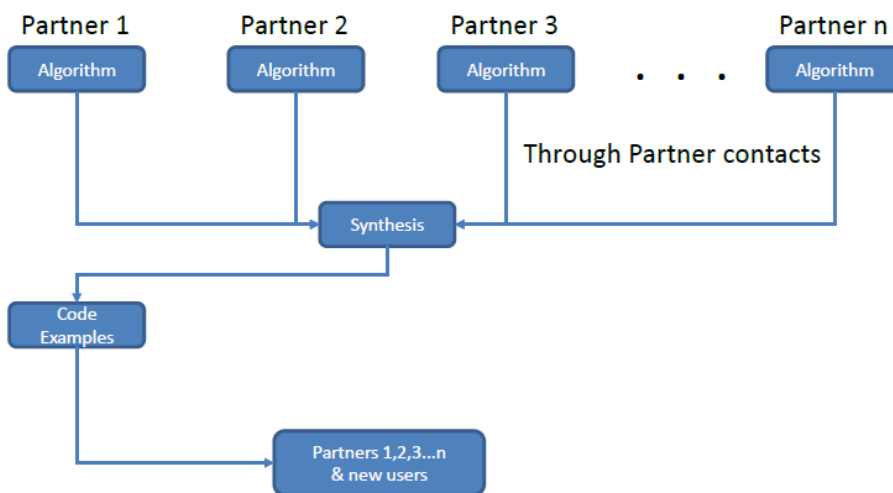

Figure 4: Scheme for the development of an optimized data processing algorithm (from talk of M. Hartman).

Discussion to JERICO label

It is generally agreed that it is a difficult task to define a JERICO label. However, according to DoW, the definition of a JERICO label is a matter of WP1, Task 1.2, and of Deliverable D1.4 (M18)!

- Terminology should be clear: how are data measured, calibrated…?
- Division between real-time and delayed-mode data?
- Labelling division between different platform types? (Ferryboxes, Gliders, Fixed Platforms)
- Be careful about semantics: Label/Certificate: different meaning!
- Label should define how data are processed
- Is it a matter of WP4 or of all WPs? Clear responsibility to defining the JERICO label!
- What is the value of the label? What benefit can I get? Which level of (un)certainty?
- Label is also an instrument for judgement of own JERICO data!

Mark Hartman needs more input for getting a structure in the definition of JERICO label, so he is waiting for feedback and will pass then the information to George Petihakis (HCMR).

Patrick Farcy will send around info about label, we need to define the label, main goal to judge own data.

Status of new sensors

16:15 Kai Sorensen:

- New installation of sensors combining autonomous pCO2 and spectrophotometric pH detection in 2013
- pH based on high resolution absorbance detection of a suitable dye injection, developed at NIVA
- pCO2 is measured using combined membrane technology and a new solid state detector, developed at Franatech
- coupled together in a compact Ferrybox set-up helps to minimize maintenance
- wish list for pCO2 and pH sensors in a Ferrybox (among others):
    - o high accuracy and precision
    - o cost effective
    - o easy installation and onboard calibration, low calibration frequency
    - o fast response time

- ongoing technical tests
- calibration issues:
  - calibration with high precision gas for best accuracy
  - wet or dry gas calibration
  - compensation for pressure differences
  - Needs for a standard operation procedure (SOP) for membrane systems in Ferryboxes

Willi Petersen:

- biogeochemistry topics
- pH-principle, setup
- Total alkalinity (TA)
- PSICAM

Jukka Seppälä:

Existing phytoplankton pigment monitoring will be extended to measurements of accessory pigments and variable fluorescence

- Multivariate analyses of spectral datasets (fluorescence,absorption,reflectance). Review of existing instruments, output used for deliverable D10.1.
- Testing of commercially available single-wavelength fluorometers with regard to phycoerythrin detection, also used for D10.1.
- Testing of instruments measuring phytoplankton variable fluorescence. Review of existing instruments, two instruments have been purchased and will be tested. Recommendations will be input to D10.1.

Comment of Patrick: **Workshop of WP10 (new sensors) 16-18 Oct 2013 in Nice!**

Status of JERICO User Display (JUD) (Task 6.1.3)

17:30 Talk by Mark Hartman

- Work-plan established by NOC
- What it is:
    - JUD : JERICO user display
    - Public display of FB data during ferry crossings to generate interest among the passengers
- What is needed:
    - Experience with web server handling and scripting languages
    - Computer capable acting as web server and running PHP
- How it works:
    - Looping sequence of pages consisting of information and data
    - Display of interleaved images one at a time
- Current status:
    - The programm core is ready, now beta-test version has been sent to interested parties
    - What is the demand, which resources will be needed?
    - Feedback from partners to identify problems, improvement suggestions
    - Technology should be robust for continuous service

Discussion:

i. Bengt mentioned that beta version has been tested in the office, but shipping company is not interested, data quality testing should be done, so far raw data, technology is ready to work

   SMHI data are transferred via internet from the ship, so real-time data are usable.

ii. Kai reported from the NIVA ferry company visualization service: the technology is critical, bad resolution of the (large) screens on board (coaxial cables are used), so service was stopped. Also, problems with firewalls have been reported.

iii. Bengt suggested that tables of latest data could be introduced in a JUD besides the usual plots

iv. Philipp asked which programs have been used and if they are open-source products

v.   Ifremer, NIVA, SMHI, and …? volunteered to (continue the) beta-test

vi.   Willi asked around regarding FB data from various lines on HZG server, sampled from MyOcean: can they go to public, what about data quality? New data are included on monthly basis, not routinely done which is planned in future. French FB data are in Coriolis, but not in MyOcean. So they are also not in HZG database.

European programme COST

18:00 <u>Talk by Patrick Farcy</u>:

- Beyond the FP7 JERICO project, JERICO-NEXT will widen integration of observations plus start of deployment of novel sensors
- Horizons2020 questionnaire:
  - o List of topics with high potential for future Horizon 2020 such as
    - Fixed Point Open Ocean Observatories
    - An Integrated European Glider Infrastructure
    - Integrated and sustained coastal observation network, expansion from JERICO
- General information about COST:
  - o intergovernmental framework, no direct research funding, but a platform for exchanging expertise, networking activities
  - o can fund eligible costs, like travel costs, summer schools etc.
  - o nine key domains + trans-domain proposals
  - o proposals are collected twice a year, next submission deadline on 27 Sep 2013 17:00 GMT+1
  - o At least 5 countries must be involved in one proposal
  - o budget is 129000€/year for each call, duration of four years

Discussion:

i.   What is the interest for us and what is the main key?

→ more partners (from outside of the current project) can be invited

→ FerryBox community would be much more visible by the European Commission, that would be helpful in regard to Horizons 2020

ii.   More discussion about COST during the FB workshop, who would be interested?
iii. Outreach for end-users and policy-makers would be interesting for us

Conclusions:
- At the end of the project, we should have a kind of handbook specific for each platform about existing systems in Europe, recommendations for new installations and best practice for operating.
- MyOcean – JERICO communication: bridge between SeaDataNet, MyOcean and JERICO has to be improved, missing meta-data in MyOcean data sets are a problem for explaining faults in data
- Task 10.5 needs more input from partners to create data quality control algorithms
- Definition of JERICO label needs more feedback from partners
- Status of new sensors: Next workshop of WP 10 in Nice 16-18 Oct 2013
- JERICO User Display is in beta version testing phase and will be continued