



Final report on training visits scheme

Deliverable Nr. 8.4





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EXECUTIVE SUMMARY / ABSTRACT

The "Training Visits Scheme" call was announced via email on the 4th May 2012 and uploaded on the PERSEUS website. The PERSEUS Scientific Steering Committee received for evaluation a total 10 different topics from 6 different Institutes. The evaluation of proposals took place during the 2nd SSC meeting in Trieste, Italy (June 2012) and three of these proposals received funding to carry out the scheme as planned in the Description of Work (DoW).

SCOPE

The specific objective of this deliverable is to give an overview of the three training visits that were during the project, which aimed to increase capacity building of scientific personnel using a "training visits" scheme among partners and it successfully achieved this goals as can be evidenced by the evaluation and comments by the participants attached in the Annex herein.



INTRODUCTION

Three host institutions were selected by the PERSEUS Steering Committee to implement the first phase of the Training Visits Scheme. Participants, within the PERSEUS partnership were selected by December 2012 after a dedicated call. A total of 38 applicants were received, of which 22 were accepted for this training visits. The first training visits scheme for 2013 were completed in May/June 2013 within the HCMR and CNR facilities in Greece and Italy respectively. The remaining training visits scheduled for 2013 were held within the Laboratoire d'Océanographie de Villefranche (LOV) during the September 2013-November 2013 period.

In the period 4-26 May 2013, the CNR-IBF carried out the training visit in "Marine Carbon Cycle. Dissolved organic matter dynamics and marine ecosystem health" at the Biophysics Institute of the CNR, Pisa.

The training on the topic "Biochemical biomarker techniques for the assessment of pollution effects in marine organisms" was implemented in two subsequent training periods of three week duration, in May-June 2013. A total of 8 trainees participated, 4 of which attended each training period.

Finally, "Digitization, automated counting, sizing and semi automatic identification of plankton" took place from 2 - 30 November 2015, at Laboratoire d'Océanographie de Villefranche sur Mer, in France.

TIMELINE:

- (i) 4th May 2012 - Call for hosting institutions was issued by HCMR (attached as Annex I)
- (ii) 31st May 2012 – Deadline for receipt of applications from hosting institutions (a total of 7 applications from 6 different institutions were received)
- (iii) 28th September 2012 – 3 successful hosting institutions (LOV, CNR-ISMAR and CNR) were notified
- (iv) 30th October 2012– Call for applicants for the Training Visits Scheme was issued by HCMR (attached as Annex II)
- (v) 28th November 2012 - Deadline for receipt of applications for the Training Visits Scheme
- (vi) 11-12th December 2012 - Selection of applicants by the PERSEUS Steering Committee

TRAINING VISITS SCHEME APPLICATIONS RECEIVED

A total of 38 applications were received by IOI-MOC (as WP8 Leaders) within the Training Visits Scheme, for the 3 courses on offer, as follows:

Course reference	Title	Hosting institution	Relevance to PERSEUS WP's	Total number of applications received
1	Automated counting, sizing and	Laboratoire d'Océanographie	1	16



	recognition of zooplankton	de Villefranche (LOV) - France		
2	Marine Carbon Cycle Dissolved organic matter dynamics and marine ecosystem health	Biophysics Institute, CNR - Italy	1,2,4	13
3	Biochemical biomarker techniques for the assessment of pollution effects in marine organisms	HCMR - Greece	2	9

Applicants came from a total of 13 countries, as shown below:

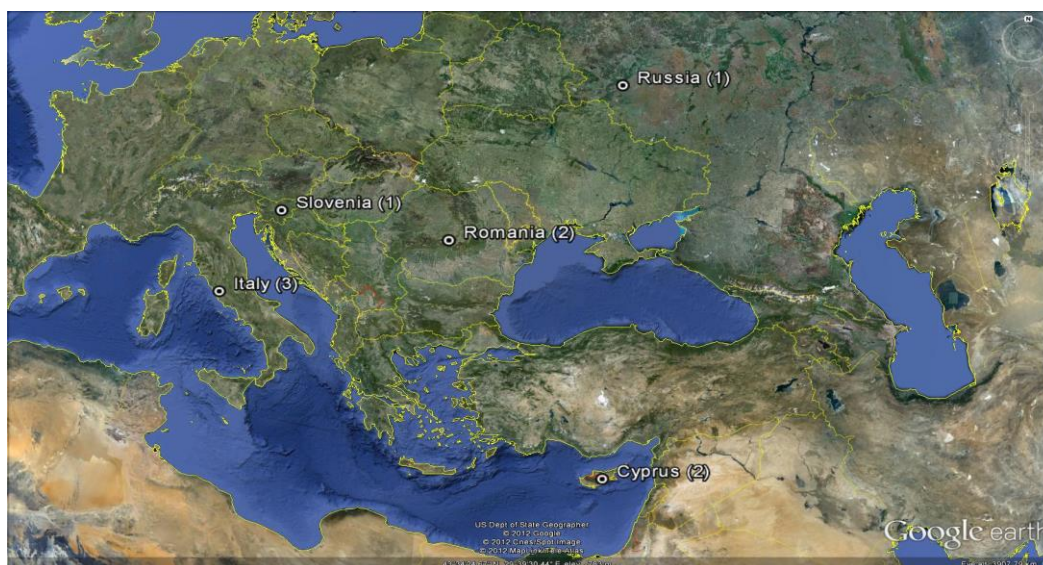


- Country of provenance of applicants for Course 1





– Country of provenance of applicants for Course 2



– Country of provenance of applicants for Course 3

13 of the applicants were males, whilst 25 were females, as shown below:

Course reference	Number of male applicants	Number of female applicants
1	9	7
2	4	9
3	0	9

CARRYING CAPACITY AND INTAKE YEARS FOR EACH TRAINING VISITS SCHEME COURSE

The 3 successful hosting institutions each identified the preferred number of applicants and year for intake, as follows:

Course reference	Year of intake	Number of applicants accepted by hosting institution
1	2013	2
	2014	2



	2015	2
2	2013	3
	2014	3
3	2013	10*

* Since only 9 applications were received for Course 3, the maximum intake number of 10 applicants was not reached for this course.

SELECTION CRITERIA

Applicants were selected by the PERSEUS Steering Committee at its 3rd meeting in Paris, France, on the 11-12th December, 2012. The following criteria and selection method were agreed upon to rank and choose the best applicants according to considerations of merit:

Selection criterion	Elaboration of selection criterion	Weighting in final score
Relevance of thematics	Consideration was given to the degree of convergence between the applicant's research interests and academic record with the thematic of the course	4
Increasing PERSEUS impact	In order to ensure the broadest reach of the PERSEUS training within the management and administrative community of each country, this criterion was scored as follows: Applicant is currently employed within a Ministry or environmental management authority – 3; Applicant is currently employed within a research institute – 2; Applicant is currently employed at University - 1	3
Support of applicant's career	Applicants still not in the possession of a PhD degree or in the early stages of their post-doc career were given precedence over established researchers	1
Recommendation by PERSEUS scientists	Applicants endorsed directly by any of the PERSEUS scientists were given precedence	1



Geographical representation	Applicants hailing from countries not represented through other applicants within the same course were given precedence; consideration was given to the balance between Mediterranean and Black Sea applicants and between EU and non-EU countries	1
Total		10

For cases in which applicants for the same course scored equally, the following selection considerations were made:

- (i) preference was made to applicants who obtained the full score (i.e. 4) for the first selection criterion;
- (ii) the selection criteria are listed hierarchically – i.e. a score of 1 for the third criterion was given precedence over a score of 1 for the fourth criterion.

If no distinction between two applicants still could not be made, the members of the PERSEUS Steering Committee meeting in Paris (11-12th December 2012) assessed in detail the individual CV's of the two applicants prior to making a final decision.

LIST OF SUCCESSFUL CANDIDATES

When the selection criteria described above were applied, the following lists of successful applicants were decided:

Course reference	Successful candidates for 2013	Successful candidates for 2014	Successful candidates for 2015
1	VLADIMIR MUKHANOV v.s.mukhanov@gmail.com	ELITSA SLAVEVA STEFANOVA stefanova_es@abv.bg	ARİFE ZENGİNER YILMAZ arife@ims.metu.edu.tr
	NATALIA BOJANIC bojanic@izor.hr	<u>PAUL NEKHOROSHKOV</u> <u>p.nekhoroshkov@gmail.com</u>	VALENTINA TIRELLI vtirelli@ogs.trieste.it

Course reference	Successful candidates for 2013	Successful candidates for 2014
2	Alessandra Campanelli a.campanelli@ismar.cnr.it	Vasiliu Dan Lucian dan.vasiliu@geoecomar.ro
	Elli Pitta	Nebil Yucel



	ellip@hcmr.gr	nebil@ims.metu.edu.tr
	Bnayahu Sulimani	Katja Klun katja.klun@mbss.org

Course reference	Successful candidates for 2013
3	Valentina Coatu; vcoatu@alpha.rmr.ro
	Yiota Lazarou; lazarou.yiota@ucy.ac.cy
	Nicoletta Nesto; nicoletta.nesto@ve.ismar.cnr.it
	Vanessa Moschino; vanessa.moschino@ve.ismar.cnr.it
	Andreja Ramsak; andreja.ramsak@nib.si
	Alisa Kosyan; kosalisa@rambler.ru
	Irina Catianis; irina.catianis@geoecomar.ro
	Rana Abu Alhaija; r.abualhaija@cyi.ac.cy
Serena Feline; serena.feline@unisalento.it	

Training Visits Schemes Reports

The training visits scheme, as set up and organised in the 1st reporting period, continued and was almost completed within this period according to the original plan as described in the DoW and deliverable D8.1 (of the past period).

The training visits scheme has activated dedicated training projects by three selected partner institutions (Laboratoire d'Océanographie de Villefranche; Biophysics Institute, CNR; Hellenic Centre for Marine Research) that are hosting a total of 22 trainees. These visits allow trainees to experience, through their participation, day-to-day scientific practices at the host institutions. The research themes on which participants are trained and which are offered by the host institutions are consistent with the goals of PERSEUS. The length of each training visit ranged from a few weeks to a couple of months, depending on the availability of the hosting institution and allocated funding.

Synoptic information about these training visits scheme is provided in Table 1. All 3 training visits scheme have been completed (LOV: 14 Oct. to 15 Nov. 2013 and 24 Nov. to 19 Dec 2014; CNR 26 May-13 June 2014) except for the 2015 part of the LOV facilities in Villefranche in 2015 as originally planned. The 2013 part has been undertaken within the 1st reporting period. Their reports along with the reports of the schemes concluded in this period can be found on the project's website, in the section dedicated to Training Visits Schemes.



Table 1

Hosting institution	Research thematic for training of participants	Participant intake	Years of intake
Laboratoire d'Océanographie de Villefranche (LOV) - France	Automated counting, sizing and recognition of zooplankton	6 (2 each year)	2013, 2014, 2015
Biophysics Institute, CNR	Marine Carbon Cycle Dissolved organic matter dynamics and marine ecosystem health	6 (3 each year)	2013, 2014
HCMR	Biochemical biomarker techniques for the assessment of pollution effects in marine organisms	10	2013

It has been decided not to extend the visiting schemes and not to repeat and open a new call in 2014 (as originally envisaged). Instead it has been discussed within the Scientific Steering Committee to divert the effort and budget to bolster the training of stakeholders in collaboration with the other WPs (especially with WP6) on the tools developed by the project.

Task 8.3 – Training Visits Scheme

Two PERSEUS Training Visit Scheme Courses were organised:

Course 1: “Automated Counting, Sizing and Recognition of Zooplankton” with 2 candidates per year (14 Oct. to 15 Nov. 2013 and 24 Nov. to 19 Dec 2014);

Course 2: “Marine Carbon Cycle. Dissolved Organic Matter dynamics and marine ecosystem health” with the Host institute being the CNR-IBF, Pisa, Italy with 3 applicants for 2014 period (26 May-13 June 2014)

The details of this task, with the information on the process and the actual reports of Course 2 and Course 3 can be found on the PERSEUS website (http://www.perseus-net.eu/site/content.php?locale=1&locale_j=en&sel=592).



Training Visit Scheme Details: CNRS

PERSEUS Training Course: “Marine Carbon Cycle. Dissolved Organic Matter dynamics and marine ecosystem health”

Host institute: CNR-IBF, Pisa, Italy

Responsible scientist: Chiara Santinelli

Date: 4/5/2013-26/6/2013

In the period May 26th to June 13th 2014, CNR-IBF carried out the second training visit in “Marine Carbon Cycle. Dissolved organic matter dynamics and marine ecosystem health” at the Biophysics Institute of the CNR, Pisa.

During the visit the applicants received basic training in the instrumentations use and lectures about the importance of dissolved organic matter (DOM) and optical properties of chromoforic fraction of DOM (CDOM) as indicators of the ecosystem health. They directly participated in:

- (1) three daily surveys aimed to collect samples in different environments: two river mouths (Arno and Magra river) differently impacted by human activity and in a marine protected area (Camogli Bay)
- (2) the filtration and treatments of samples
- (3) the measurement of DOC concentration and CDOM optical properties (absorption and fluorescence) on the collected samples
- (4) the elaboration and interpretation of the results.

At the end of the visit the participants gave a presentation with the aim to present and discuss the main results achieved during the visit.

The training was successful both from a social and scientific perspective. The trainers interacted a lot and gained very good results, the atmosphere was pleasant. The visit was an interesting moment of scientific comparison and growth as well as an occasion of interdisciplinary discussion. The scientific level of the participants was very high, so they interacted a lot among them and with our group and this allowed the scientific discussion and growth.

List of participants

Name	Institute	Position
Katja Klun	National Institute of-Biology Ljubljana (NIB) Vecna pot 111, Ljubljana, Slovenia Marine Biology Station Piran (department of NIB); Fornace 41, Piran 6330, Slovenia	PhD Student
Nebil	Institute of Marine Sciences, Middle East Technical University, Erdemli, Mersin,	PhD Student



Yiicel	Turkey	
Vasiliu Dan Lucian	National Institute Research and Development Institute for Marine Geology and Geoecology (GEOECOMAR), Romania	Scientist – Chemical Oceanography

SCHEMATIC PROGRAMME OF THE VISIT

First week

- Lectures about DOC & introduction to DOC analysis
- Lectures about CDOM & introduction to absorption and fluorescence measurements
- Presentations by the participants
- Basic training in the use of instrumentations for CDOM analysis
- Introduction to the main programs used for data analysis and elaboration
- Samples collection at the Arno river mouth
- DOC and CDOM (absorption and fluorescence) analysis on the collected samples

Second week

- Lectures about DOM dynamics in the Mediterranean Sea
- Lecture “CDOM in coastal areas of the Mediterranean Sea”
- Basic training in the use and maintenance of the instrument for DOC analysis
- Samples collection at the Magra River mouth
- DOC and CDOM (absorption and fluorescence) analysis on the collected samples
- DOC and CDOM data elaboration

Third week

- Lecture “CDOM in open sea water of the Mediterranean Sea”
- Lecture “DOM dynamics in the Gulf of Naples”
- Samples collection in the Camogli Bay
- DOC and CDOM (absorption and fluorescence) analysis on the collected samples
- DOC and CDOM data elaboration
- Discussion about the results
- Final presentation

CNR-IBF people who contributed to the training:

- **Chiara Santinelli** (Researcher) Role: Scientific responsible of the training visit, lectures and data elaboration and interpretation
- **Margherita Gonnelli** (Researcher) Role: Practical lessons about CDOM, support during the analysis



- **Stefano Vestri** (Technician) Role: Practical lessons about DOC, sampling, support during the analysis
- **Simona Retelletti Brogi** (PhD student) Role: support during the analysis, lecture
- **Yuri Galletti** (Fellowship) Role: support during the analysis, lecture
- **Simona Drago** (Master degree graduated student) Role: lecture

Training Visit Scheme Details: HCMR

PERSEUS Training Course: “Biochemical biomarker techniques for the assessment of pollution effects in marine organisms”

Host institute: HCMR

Responsible scientist: Catherine Tsangaris

Scientist: Evangelia Stroglyoudi

Technician: Despina Kaparou

Date: 13/5/2013-21/6/2013

The training on the topic “Biochemical biomarker techniques for the assessment of pollution effects in marine organisms” was implemented under the PERSEUS training visits scheme 2013/2014, in two subsequent training periods of three weeks duration in May-June 2013. A total of 8 trainees participated, 4 of which attended each training period.

The training is relevant to PERSEUS WP2 subtask 2.3.4 and MSFD descriptor: D8 Contaminants and pollutions effects. Training was provided on biochemical techniques i.e. metallothionein content, acetylcholinesterase, catalase and glutathione-S-transferase activities, as biomarkers of pollutant exposure and/or effects. The goal was to provide research training and technical assistance to individuals to promote collection of data on biomarkers of pollution from areas where relative information is poor. The trainees were invited to provide samples from their regions and apply common analytical protocols to assess biochemical biomarkers in different SES sub regions.

Prior to the training visits, guidelines on sampling and sample preparation were communicated to the participants in order to collect indicator organisms from their regional sampling sites including reference and contaminated sites (2-4 sites per participant). Sampling was performed by the participants during May 2013 and the samples were transferred to HCMR for analysis during the training visits. Samples of indicator organisms (mussels or fish) from seven areas were collected, and the participants brought them for analysis to HCMR.

Area	Indicator species	Number of sites
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Slovenian coast, North Adriatic Sea	<i>Mytilus galloprovincialis</i>	4
Saronikos Gulf, Aegean Sea	<i>Mytilus galloprovincialis</i>	4
Cyprus coast, Levantine Sea	<i>Brachidontes pharaonis</i> and <i>Mullus surmuletus</i>	4
Apulia coast, South Adriatic Sea, Ionian Sea	<i>Diplodus sargus sargus</i>	3
Venice lagoon, North Adriatic Sea	<i>Mytilus galloprovincialis</i>	2
Constanta, Black Sea	<i>Mytilus galloprovincialis</i>	2
Gelendzhik and Strait of Kerch, Black Sea	<i>Mytilus galloprovincialis</i> and <i>Rapana venosa</i>	2

The first week of the course included lectures and laboratory demonstrations of the biomarker techniques using samples provided by the course organizers (given and directed by C. Tsangaris and E. Stroglyoudi). A general introduction of the use of biomarkers in biomonitoring and the detailed procedures, for metallothionein, acetylcholinesterase, catalase and glutathione-S-transferase both in theory and practice were presented. The protocols on the biomarker analyses were distributed to the participants. After laboratory demonstrations the participants were actively involved in the analyses. During the second and third week of the course, the participants were split in working groups and analysed their samples under the supervision of the HCMR scientists. On completion of the analyses, data were compiled and processed. Two days were dedicated to the initial assessment of the results, guidance on the preparation of the course's reports and discussions on the preparation of a common publication. A draft outline on the common publication has been laid and specific tasks have been assigned to the participants for the preparation of the publication.

The course programme run for two training periods from 13/5-31/5 and from 3/6-21/6.

The first group of scientists who participated from 13-31 May was:

- Andreja Ramsak, National Institute of Biology, Marine Biology Station, Slovenia
- Alisa Kosyan, Southern branch of P.P. Shirshov Institute of Oceanology of RAS; A.N. Severtsov Institute of Ecology and Evolution of RAS
- Irina Catianis, National Research and Development Institute for Marine Geology and Geoecology-GeoEcoMar- Bucharest, Romania
- Serena Felling, Laboratory of Zoology and Marine Biology, Department of Biological and Environmental Science and Technology, University of Salento



The second group of scientists who participated from 3-21 June was:

- Valentina Coatu, National Institute for Marine Research and Development "Grigore Antipa" Constantza, Romania
- Yiota Lazarou, Oceanography Centre, University of Cyprus
- Vanessa Moschino, Institute of Marine Sciences - ISMAR - CNR
- Rana Abu Alhaija, Energy, Environment and Water Research Center (EEWRC) of The Cyprus Institute

In addition, 2 scientists participated with their own expenses in the course: Suzanna Karvalho from KAUST (King Abdulah, University of Science and Technology) supported herself and attended the core of this training (2 weeks) supported by KAUST and Leyla Bordbar, a PhD Student from University of Athens, Department of Chemistry, Laboratory of Environmental Chemistry.

Programme of the Visit

Week 1: Lectures and demonstrations

“General concepts on the use of biomarkers for pollution assessment”

“The use of Metallothioneins (MTs) as biomarker of heavy metal exposure for pollution assessment”

“Basic concepts of methodology for the determination of MT content”

“The use of acetylcholinesterase (AChE), catalase (CAT) and glutathione-S-transferase (GST) as biomarkers for pollution assessment”

“Basic concepts of methodologies for the determination of AChE, CAT and GST activities”

Week 2 and Week 3: Analyses of participant’s samples Data processing, statistical analysis and Preparation of draft reports and draft common publication outline.

Training Visit Scheme Details: LOV (in 3 parts)

Part 1 (14 Oct. to 15 Nov. 2013): “Automated counting, sizing and recognition of plankton”

Laboratoire d’Océanographie de Villefranche sur Mer (LOV) – France

Chief scientist: Prof. Lars Stemmann

Technical coordinators: Amanda Elineau and Jean-Baptiste Romagnan

Short description of Topic:

Micro- to macroplankton are key components of pelagic marine ecosystems, but sample analysis is time consuming. The training proposed here is aimed at providing methods of obtaining data on plankton > 20 µm in a rapid way. Imaging systems together with computer assisted recognition can be used to accelerate the analysis. The counterpart is a lower taxonomic resolution than traditional microscopic analysis. The presented analyses methods



are complementary to microscopic analysis. Using imaging systems it is now possible to identify up to 100 groups of organisms and detect significant ecological dynamics.

Equipment to be deployed/used during training:

The FlowCam and ZooScan imaging systems together with the Zooprocess and Plankton Identifier (PkID) software make up an integrated system for the acquisition and classification of digital plankton images from preserved plankton samples. Plankton samples are digitized and processed by the Zooprocess and PkID to detect, enumerate, measure and classify the digitized objects. A semi-automatic approach that entails automated classification of images and the following manual validation provide a rapid and accurate classification imaged objects.

Brief description of methods to be developed during this training course:

The trainees will get hands-on experience in using the two imaging systems described above (FlowCam, ZooScan) and the associated software suite (Zooprocess, PkID). They will learn how to interpret the data, including the derivation of ecological indicators. The trainees are welcome to bring their own samples.

Expected outcomes of the training:

The trainees will know how to (1) use laboratory-imaging systems for plankton analysis, (2) derive ecological indicators from the data produced by these systems, and (3) understand the advantages and limits of such systems. Back at their home institutions, the trainees will be able to use independently these commercially available instruments for their own research.

Part 2 (24 Nov. to 19 Dec. 2014): “Automated counting, sizing and recognition of plankton”

Laboratoire d’Océanographie de Villefranche sur Mer (LOV) – France

Chief scientist: Prof. Lars Stemmann

Technical coordinators: Marc Picheral, Jean-Baptiste Romagnan, Corinne Desnos and Amanda Elineau (PRIME team)

Short description of Topic:

Micro- to macroplankton are key components of pelagic marine ecosystems, but sample analysis is time consuming. The training proposed here is aimed at providing methods to rapidly obtain data on plankton > 20 µm. Imaging systems together with computer-assisted recognition techniques can be used to accelerate the analysis. The counterpart is a lower taxonomic resolution than traditional microscopic analysis. The presented analyses methods are complementary to microscopic analysis. The use of imaging systems enable the identification of up to 100 groups of organisms and the detection of significant ecological dynamics.

Equipment to be deployed/used during training:

The FlowCam and ZooScan imaging systems together with the Zooprocess and Plankton Identifier (PkID) software make up an integrated system for the acquisition and classification of digital plankton images from preserved plankton samples.



Plankton samples are digitized and processed by the Zooprocess and PkID to detect, enumerate, measure and classify the digitized objects. A semi-automatic approach that entails automated classification of images and the following manual validation provide a rapid and accurate classification imaged objects.

Brief description of methods to be developed during this training course:

The trainees will get hands-on experience in using the two imaging systems described above (FlowCam, ZooScan) and the associated software suite (Zooprocess, PkID). They will learn how to interpret the data, including the derivation of ecological indicators. The trainees are welcome to bring their own samples.

Expected outcomes of the training:

The trainees will know how to (1) use laboratory-imaging systems for plankton analysis, (2) derive ecological indicators from the data produced by these systems, and (3) understand the advantages and limits of such systems. Back at their home institutions, the trainees will be able to use independently these commercially available instruments for their own research.

Part 3 (02 Nov. to 30 Nov. 2015): “Digitization, automated counting, sizing and and semi automatic identification of plankton”

Laboratoire d’Océanographie de Villefranche sur Mer (LOV) – France

Chief scientist: Prof. Lars Stemmann

Technical coordinators: Marc Picheral, Jean-Baptiste Romagnan, Corinne Desnos and Amanda Elineau

Trainees: Dr. Arife Yilmaz and Dr Valentina Tirelli

This training period is the last one of a series of three. They were all successful thanks to the dedication of the team in Villefranche and the attendee. We asked them to send reference letters (that we have for 2013 and 2014 and we are waiting for 2015). The course evolved thanks to their comments.

Short description of Topic:

Micro- to macroplankton are key components of pelagic marine ecosystems, but sample analysis is time consuming. The training proposed here is aimed at providing methods to rapidly obtain data on plankton $> 20 \mu\text{m}$. Imaging systems together with computer-assisted recognition techniques can be used to accelerate the analyses. The counterpart is a lower taxonomic resolution than traditional microscopic analysis. The methods presented here are complementary to microscopic analysis. The use of imaging systems enable the identification of up to 100 groups of organisms and the detection of significant ecological dynamics.

Equipment to be used/deployed during the training course:

The FlowCAM upgraded with a C71 5 ml syringe pump and ZooScan imaging systems together with the Zooprocess and Ecotaxa software make up an integrated system for the acquisition and classification of digital plankton images obtained from the digitization of preserved plankton samples. Plankton samples are digitized and processed by the Zooprocess and a web based semi automatic sorting application, Ecotaxa, to detect, enumerate, measure and classify the digitized objects. A semi-



automatic approach that entails automated classification of images and the following manual validation provide a rapid and accurate classification imaged objects. In addition, the trainees will attend a Webinar with Harry Nelson, vice-president of Fluid Imaging (FlowCAM manufacturer) that entails up-to-date FlowCAM description and associated techniques.

Brief description of methods to be developed during this training course:

The trainees will get hands-on experience in using the two imaging systems described above (FlowCAM, ZooScan) and the associated software suite (Zooprocess, computer assisted sorting applications). They will learn how to interpret the data, including the derivation of ecological indicators. The trainees are welcome to bring their own samples.

Expected outcomes of the training:

The trainees will know how to (1) use benchtop imaging systems for plankton analysis, (2) Use the dedicated softwares and techniques to acquire and properly output data appropriate for scientific use (3) derive ecological indicators from the data produced by these systems, and (4) understand the advantages and limits of such systems. Back at their home institutions, the trainees will be able to use independently these commercially available instruments for their own research.



ANNEX I

TRAINING VISITS SCHEME: CALL FOR HOST INSTITUTES

In line with the PERSEUS Description of Work (DoW), a personnel training visits scheme among partners, with the aim to train individuals, transfer knowledge and allow the dissemination and sharing of technological expertise will be organized under Work Package 8, Task 8.3.

This call is to invite the PERSEUS Partner Institutes throughout the Mediterranean and Black Seas, to submit proposals for the personnel training visits scheme, focusing on scientific, technical and/ marine environmental management topics related to the scope of the PERSEUS.

The interested Institutes are requested to submit their proposals to host/accept training visits and offer high quality training in scientific, technical and/ marine environmental management topics for a duration of a few weeks to a couple of months.

This is a single call for the host Institutes. The final decision on the qualifying host Institutes and the schedule of the training visits will be taken in June 2012 by the Scientific Steering Committee. Three calls will then open for the trainees in the years 2012, 2013 and 2014.

Application/Selection criteria:

The submitted proposals should not be more than 3 pages and should clearly indicate the following points (against which they are going to be evaluated by the Steering Committee):

1. The nature of training offered, indicating the general issue(s) that the training will be carried on, the targets set, the available expertise, the facilities to be used, and the expected benefits from the visit (for all recipients).

2. The expected number of trainees and the duration of each visit (duration of the visits will depend upon the topics and importance for PERSEUS and could range from a few weeks to a couple of months)

3. The tentative budget request of the host Institute (please provide details on how it will be expended). The budget for the proposed training activities will be evaluated against the transfer of expertise provided. The funding received would be mainly dedicated to “bench fees” and the personnel that will work with the trainees.



4. (Optional) The time that is best suit for the visit, based on the Institute's availability and PERSEUS needs. This will help the Steering Committee to decide on the overall schedule of visits.

It should be noted that such training would not support additional activity in the host Institute. The offered training would rather suit everyday's activity towards PERSEUS's goals.

How to apply:

Please submit your proposals to WP8.3 Task Leader, Martha Papathanassiou, at mpapath@hcmr.gr before **31 May 2012**. The final list of the submitted proposals will be prepared for discussion during the Steering Committee Meeting in June 2012, where the final decision will be taken.

Further information

The Training Visits Scheme is described in the DoW under Task 8.3 of WP8.

The proposed activities during the visits will not be restricted to scientific research topics, but further extended to technical capacity and marine environmental management topics.

Visits of scientists and technicians will be organised at selected PERSEUS partner institutes, who will provide training---on---the---job opportunities and hands---on experience. The goal is to put across and transfer expertise within the network, involving and engaging all Mediterranean and Black Sea countries on an equal opportunity basis.

The central idea is not simply to train individuals, but rather to support and encourage individuals to successfully complete their tasks and duties on the job. This exchange of scientists will meet the training needs of all individuals, while simultaneously it will complement the activities of other WPs, especially in relation to case studies.

ANNEX II

Open Call for the 1st PERSEUS Training Visits Scheme

Dear colleagues,

This is to inform you that a call is open for application for the First Training Visits Scheme, under PERSEUS, which aims to train individuals, as well as to transfer knowledge and allow sharing and diffusion of technological expertise among partners.



Conditions for application:

1. Who may apply: The call is open for scientists, technicians and PhD students within the PERSEUS partner Institutes.
2. How to apply: Please fill in the Application form at the end of this document
3. Deadline for applications: **28 November 2012**
4. Dates for training are between 2013-2015 (see individual proposals for details).
5. Please send your application in electronic format to Professor Aldo Drago: aldo.drago@um.edu.mt

Other Information:

- The applicants will be selected by the Scientific Steering Committee.
- The successful applicants will be personally informed about the outcome of their application, while the list of successful applicants will also be posted on the PERSEUS website.
- The grant covers travel expenses, accommodation, and per diem for each applicant, while training expenses and fees for the Institutes are also covered by PERSEUS.

1. TECHNICAL DETAILS OF THE TRAINING

Institute	Country	Chief scientist	Relevance to WPs
Laboratoire d'Océanographie de Villefranche (LOV)	France	Prof. Louis Legendre	WP1
Topic	Automated counting, sizing and recognition of zooplankton		
Short description of Topic	<p><u>AUTOMATED COUNTING, SIZING AND RECOGNITION OF ZOOPLANKTON</u></p> <p>Micro- and macrozooplankton are key components of pelagic marine ecosystems, but sample analysis is time consuming. The training proposed here is aimed at providing methods of obtaining data on plankton > 10 µm (mostly zooplankton) in a rapid way compatible with PERSEUS goals. Imaging systems together with computer-assisted recognition can be used to accelerate the analysis. The counterpart is a lower taxonomic resolution than traditional microscopic analysis, so the system is a complementary method to the traditional one and can help to focus on a specific subset of samples. Using the Flowcam and Zooscan we can, on a routine basis, analyse up to 100 groups of organisms and detect significant ecological dynamics.</p>		
Equipment to be	The Flowcam and ZooScan hardware together with the ZooProcess		



deployed/used during training	and Plankton Identifier (PkID) software make up an integrated analysis system for the acquisition and classification of digital zooplankton images from preserved zooplankton samples. Zooplankton samples are digitized and processed by the ZooProcess and PkID to detect, enumerate, measure and classify the digitized objects. A semi-automatic approach that entails automated classification of images and the following manual validation provide a rapid and accurate classification of zooplankton and abiotic objects.
Brief description of methodologies/ protocols to be deployed/used during such training	The trainees will get hands-on experience in using the two imaging systems described above (Flowcam, ZooScan) and the associated software (ZooProcess, Plankton Identifier-PkID). They will learn how to interpret the data, including the derivation of ecological indicators. The trainees would be welcome to bring their own samples, acquired for example during PERSEUS cruises.
Expected outcomes/ deliverables of the training to be conducted¹	The trainees will learn how (1) to use laboratory-imaging systems for plankton analysis, (2) to derive ecological indicators from the data produced by these systems, and (3) to understand the advantages and limits of such systems. Back at their home institutions, the trainees could independently use these commercially available instruments for their own research.
Training duration	30 days (up to 45)
Number of trainees	2 (per period)
Training period	All year round, but not July and August

2. TECHNICAL DETAILS OF THE TRAINING

Institute	Country	Chief scientist	Relevance to WPs
Biophysics Institute, CNR	Italy	Chiara Santinelli	WP1, WP2, WP4
Topic	Marine Carbon Cycle Dissolved organic matter dynamics and marine ecosystem health		

¹ May include sampling survey, analysis of existing samples, technical report, scientific publication, etc



Short description of Topic	<p>Marine dissolved organic matter (DOM) represents the largest, most complex and least understood reservoir of organic carbon on the Earth. The importance of DOM is connected to its ecological significance and its central role in the global carbon cycle. It is produced at each level of the marine food web and it represents the source of energy for heterotrophic bacteria. Its colored fraction (CDOM) adsorbs light at UV and visible spectral regions, influencing the underwater light availability in open and coastal regions with important implication on primary production and biological activity.</p> <p>DOC and CDOM can give indirect information about the status of health of the marine ecosystem. In fact abnormal DOC concentrations (both too high and too low) or particular features of optical properties of CDOM are an alarm bell on the health of the ecosystem. DOM can be considered as the summary of all the biological processes occurring in the sea, so not only does it give integrated information about how the food web and the microbial loop functions, but it also influences and is influenced by all the physical, chemical and biological processes occurring in the oceans.</p>
Equipment to be deployed/used during training	<ul style="list-style-type: none"> • Total organic carbon analyser, Shimadzu (TOC-5000A; TOC-V CSN) • FLUOROMAX4 fluorometer with a Photon Counting detector for ultimate sensitivity • Jasco V550 UV/VIS spectrophotometer



Brief description of methodologies/ protocols to be deployed/used	<p>During the training the applicants will receive basic training in the instruments' use and lectures about the importance of DOM as an indicator of the ecosystem health. They will participate in (1) a one-day survey to collect samples (2) the filtration and treatments of samples (3) the analysis of the samples in order to gain information on DOC concentration and CDOM optical properties (absorption and fluorescence) (4) the elaboration and interpretation of the data collected during the training and the historical data collected by IBF-CNR.</p> <p>The DOC concentration will be determined by the high temperature catalytic oxidation.</p> <p>In order to get information on CDOM the absorption spectra will be measured in the range 220-800 nm and the spectral slope will be calculated by non-linear interpolation.</p> <p>Fluorescence emission spectra ($\lambda_{\text{ex}} = 280 \text{ nm}$ and 355 nm) as well as excitation emission matrix will be registered ($\lambda_{\text{ex}} = 220-450 \text{ nm}$; $\lambda_{\text{em}} = 300-600 \text{ nm}$) and they will be analysed by using the parallel factorial analysis (PARAFAC), in order to obtain information on the different kinds of fluorophores occurring in CDOM pool. The following programs will be used for data elaboration: Matlab, Origin, Sigmaplot and Ocean Data View.</p>
Expected outcomes/ deliverables of the training to be conducted	<p>At the end of the training the applicants will be requested to produce a technical report and a presentation of the results obtained during the training.</p>
Training duration	<p>3 weeks</p>
Number of trainees	<p>3</p>
Training period	<p>May - June 2013 & March - June 2014</p>



3. TECHNICAL DETAILS OF THE TRAINING

Institute	Country	Chief scientist	Relevance to WPs
HCMR	Greece	Catherine Tsangaris	WP2
Topic	Biochemical biomarker techniques for the assessment of pollution effects in marine organisms		
Short description of Topic	<p>Biomarkers are among the emerging tools for the assessment of pollution effects in marine ecosystems. Biomarkers are biochemical, physiological and behavioral responses that signal exposure to and/or adverse effects of anthropogenic contaminants. Training will be provided on biochemical biomarker techniques i.e. metallothionein content, acetylcholinesterase, catalase and glutathione-S-transferase activities. Participants will be trained on the above techniques using samples provided by HCMR and subsequently will analyze their regional samples. Prior to the training visits, participants will collect indicator organisms from their regional sampling sites at reference and pollution hot spot areas (2-4 sites per participant) and transfer them to HCMR for the biomarker analyses. The mussel <i>Mytilus galloprovincialis</i> is the proposed indicator organism, but if this species is not available at the participant's working areas alternative indicator organisms will be considered. Training will include lectures, and laboratory analyses. An intercalibration exercise will be subsequently carried out among laboratories that will apply the biomarker techniques. The target is to exchange and apply common analytical protocols in order to assess biomarker levels in different sub regions and produce data of biological effect measurements from areas where relative information is poor.</p>		
Equipment to be deployed/used during training	Balance, Homogeniser, Microcentrifuge, Absorbance microplate reader, Spectrophotometer, Deep freezer.		



Brief description of methodologies/protocols to be deployed/used	<p><i>Sample preparation:</i> Just after the collection of mussels, the gills and digestive glands are dissected, frozen in liquid nitrogen and stored at -80° C until analysis. Tissues are homogenized in a buffer and centrifuged following the appropriate procedure for the analysis to be performed.</p> <p><i>Analytical methods:</i> Metallothioneins content is measured spectrophotometrically according to Viarengo et al. (1997). The method is based on the estimation of the sulphhydryl content of MTs proteins by spectrophotometric determination of the -SH groups using Ellman's reagent. AchE activity is assayed by the method of Ellman (Ellman et al., 1961) adapted to microplate reading by Bocquené et al. (1993). CAT activity is measured by the method of Cohen et al. (1996) by the loss of H₂O₂ that is measured colorimetrically with ferrous ions and thiocyanate on a microplate reader. GST is measured by the method of Habig and Jacoby (1981) with 1-chloro-2,4-dinitrobenzene (CDNB) as a conjugation substrate adapted to microplate reading.</p>
Expected outcomes/deliverables of the training to be conducted	<p>Establishment of a network of scientists working on biomarkers of pollution A common publication on the comparative study of biomarkers of pollution in different SES regions</p>
Training duration	<p>3 weeks per training period (2 subsequent training periods of 6 weeks total duration)</p>
Number of trainees	<p>5 (10 in total)</p>
Training period	<p>May-June 2013</p>



APPLICATION FORM
1st PERSEUS Training Visits Scheme

Grant Agreement No. 287600

Please fill in all sections clearly in English. Complete and detailed answers are required in order to ensure the most appropriate selection of candidates.

Name of Applicant				
E-mail				
Contact Address				
Phone				
Fax				
Nationality				
Current Institute Affiliation				
Position				
Gender	Male		Female	
Age Group	20-30	30-40	40-50	50 +
Training course (Please mark one choice)	1	2	3	
Qualifications				
Language skills (Please indicate first language and other languages spoken or understood)				
Short CV (not more than 1 page; please continue on a separate page if necessary)				



Please indicate why you have chosen this specific course and describe what you hope to achieve, professionally and personally, by completing the training.

Have you ever been awarded a scholarship?

If yes, please give details.

Have you written or contributed to relevant publications?

If yes, please give details. (Do not attach)

Membership in relevant professional institutions

Name of institution	Membership status	Membership period (yyyy)



Late or incomplete applications will not be considered

Kindly also note that successful applicants will be required to obtain adequate medical and other insurance cover for their entire stay in the country hosting the training course. This expense is not covered by the scholarship package and participants are to make the necessary arrangements and cover these costs personally.

I certify that my statements in answer to the previous questions are true, complete and correct to the best of my knowledge

Candidate's signature

Date



ANNEX III

LOV Training course schedule: 14 Oct - 15 Nov 2013

Monday 14 October

Morning: Welcome of the attendees at the LOV, administrative registration and paperwork (IT, LOV restaurant). Presentation of the program.

Afternoon (Salle Corderie): Interactive theoretical presentation of imaging applied to plankton analysis. Presentation of workshop useful documents (Gorsky *et al.*, 2010; Zooprocess short manual, Plankton Identifier software online Manual).

Tuesday 15 October

Morning (Salle Corderie): Tutorial: Software installation on personal computers (ImageJ, Vuescan, Zooprocess, ZooScan drivers, Tanagra, PkID, PIDviewer, XnView, Java package).

Afternoon (ZooScan Lab): Tutorial: installation of the ZooScan software package and instrument on a dedicated computer as attendees were in their own lab (ZooScan v3, 4800 dpi).

Wednesday 16 October (ZooScan Lab)

Tutorial: Whole analytic procedure for ZooScan. Preparation of the samples and metadata, scanning procedure sequence, process of the acquired images, prediction of identification, automatic sorting, visual validation and data extraction.

Thursday 17 October (ZooScan Lab)

Tutorial: Whole analytic procedure for FlowCam. Preparation of the samples and metadata, imaging procedure sequence, process of the acquired images, prediction of identification, automatic sorting, visual validation and data extraction.

Friday 18 October (Salle Corderie)

Tutorial: What is a training set? How is a training set built and evaluated? What is semiautomated identification ? Making of a theoretical training set to practice with simple objects.

Monday 21 October to Friday 25 October: FlowCam practice on real samples
“From collecting microplankton to the extraction of size and taxonomic data from images”

Monday 28 October to Friday 01 November: ZooScan practice on real samples
“From collecting zooplankton to the extraction of size and taxonomic data from images”

Monday 04 November to Friday 08 November: Results and data analysis

What can we do with FlowCam and ZooScan data outputs? Tools and tips to add value and visualize your data.

Wednesday morning, (salle Corderie) Examples of application of imaging systems for ecological studies and as provider of proxies for water quality assessment

Monday 11 November to Friday 15 November: Autonomous work on personal samples/data.

**LOV Training course schedule: 24 Nov - 19 Dec 2014****1st Week****Monday 24th November**

Welcome of the attendees at the LOV, administrative registration and paperwork (IT, LOV restaurant). Presentation of the program with Amanda Elineau

Tuesday 25th November

Morning (Salle Corderie)

Interactive presentation of imaging applied to plankton analysis. Presentation of useful documents (Gorsky *et al.*, 2010; Zooprocess short manual, Plankton Identifier software online Manual) with Marc Picheral

Afternoon (Zooscan Lab)

Zooscan Tutorial & Practical work:

Whole analytic procedure for Zooscan. Preparation of the samples and metadata, scanning procedure sequence, process of the acquired images, prediction of identification, automatic sorting, vignettes extraction with Amanda Elineau

Wednesday 26th November

All day (Zooscan Lab)

Zooscan Tutorial & Practical work:

Whole analytic procedure for ZooScan. Preparation of the samples and metadata, scanning procedure sequence, process of the acquired images, prediction of identification, automatic sorting, vignettes extraction with Amanda Elineau and Corinne Desnos

Thursday 27th November

Morning (Zooscan Lab)

Zooscan Tutorial & Practical work:

Whole analytic procedure for ZooScan. Preparation of the samples and metadata, scanning procedure sequence, process of the acquired images, prediction of identification, automatic sorting, data extraction with Corinne Desnos

Afternoon (Zooscan Lab)

Zooscan Tutorial & Practical work:

Software installation on personal computers (ImageJ, Vuescan, Zooprocess, ZooScan drivers, Tanagra, PkID, PIDviewer, XnView, Java package) with Amanda Elineau

Friday 28th November

*All day (Zooscan Lab)

Zooscan Tutorial & Practical work:

Whole analytic procedure with simple objects (circles and squares) with Amanda Elineau

Debriefing of the week

2nd Week**Monday 1st December**

All day (Zooscan Lab)

Zooscan Practical work:



Whole analytic procedure for ZooScan. Preparation of the samples and metadata, scanning procedure sequence, process of the acquired images, prediction of identification, automatic sorting, data extraction with Corinne Desnos

Tuesday 2nd December

Morning (Zooscan Lab)

Short discussion on the use of imaging systems (Flowcam and Zooscan) for taxonomy and biodiversity studies with Jean Baptiste Romagnan

Zooscan Tutorial:

Making of a theoretical training set to practice on simple objects (circles and squares) with Amanda Elineau

Afternoon (Zooscan Lab)

Validation of Sorted Vignettes with Amanda Elineau

Wednesday 3rd December

All day (Zooscan Lab)

Validation of Sorted Vignettes with Amanda Elineau

Thursday 4th December

All day (Zooscan Lab)

Zooscan Practical work:

Making of a training set to practice on real samples with Amanda Elineau

Friday 5th December

Morning (Zooscan Lab)

Zooscan Tutorial & Practical work:

How to improve your training set or visualize the errors of classification ? with Amanda Elineau

Debriefing of the week

3rd Week

From Monday 8th December to Friday 12th December

All week (Zooscan Lab)

Flowcam Practical work:

Whole analytic procedure for FlowCam. Preparation of the samples and metadata, imaging procedure sequence, process of the acquired images, prediction of identification, automatic sorting, visual validation and vignettes extraction with Jean Baptiste Romagnan

Thursday 11th December

Morning: Talk Marc Picheral: Example of another imaging system: UVP

Afternoon: Florin and Simone presentations !

Friday 12th December

Debriefing of the week

4th Week

Monday 15th December



ALL DAY Interactive presentation: Results and data analysis. What can we do with FlowCam and ZooScan data outputs? Tools and tips to add value and visualize your data.

Quality Check on images, classification and metadata, with Jean Baptiste Romagnan

Tuesday 16th December

Quality Check on images classification and metadata, with Jean Baptiste Romagnan

Wednesday 17th December

Morning (Lars office)

Presentation: “Examples of application of imaging systems for ecological studies and as provider of proxies for water quality assessment”, Lars Stemmann

Thursday 18th December

Evening: restaurant

Friday 19th December

Big Debriefing!!!

LOV Training course schedule: 2 - 27 November 2015

Monday 2nd November

Welcome of the attendees at the LOV, administrative registration and paperwork (IT, LOV restaurant). Presentation of the program with JBR.

Tuesday 3rd November

Morning 9 am - 12 pm (Salle Tregouboff)

Interactive presentation of imaging applied to plankton analysis. Presentation of useful documents (Gorsky *et al.*, 2010; Vandromme *et al.*, 2012; Romagnan *et al.*, 2015 Zooprocess short manual, etc) with MP or JBR

Afternoon 2 - 5.30 pm (Zooscan Lab)

Presentation: “Examples of application of imaging systems for ecological studies and as provider of proxies for water quality assessment”, LS

Presentation of the instruments: Zooscan & FlowCAM

Software installations & Demonstration: image acquisition with the Zooscan using simple objects. Documents exploration, Zooscan project creation, metadata initial management, and image acquisition and process on simple artificial objects with AE or JBR

Wednesday 4th November

All day (Zooscan Lab)

Webinar with Harry Nelson from Fluid Imaging (FlowCAM manufacturer)

Zooscan & FlowCAM: digitization of natural plankton samples, images acquisition
Preparation of samples and associated metadata, acquiring images, process of the acquired images with AE, CD and JBR

Thursday 5th November

All day (Zooscan Lab)



Zooscan & FlowCAM: digitization of natural plankton samples images acquisition
Preparation of samples and associated metadata, acquiring images, process of the
acquired images with AE, CD and JBR

Friday 6th November

All day (Zooscan Lab)

Zooscan & FlowCAM: digitization of natural plankton samples images acquisition
Preparation of samples and associated metadata, acquiring images, process of the
acquired images with AE, CD and JBR

Debriefing of the week

2nd Week: analysis of digitized images - semi automatic identification of plankton

Monday 9th November

Morning 9 - 12 pm (Zooscan Lab)

Introduction to semi automatic identification : **Ecotaxa**

What is semi automatic identification ? What is a training set? How do I evaluate its
performances? What is a learning set ? How can it be improved?

Practise on Ecotaxa software using simple artificial objects. JBR, AE and CD

Tuesday 10th November

All day (Zooscan Lab)

Practice semi automatic identification of digitized natural plankton samples: Ecotaxa.
JBR, AE and CD

Wednesday 11th November

Day off

Thursday 12th November

All day (Zooscan Lab)

Practice semi automatic identification of digitized natural plankton samples: Ecotaxa.
JBR, AE and CD

Friday 13th November

All day (Zooscan Lab)

Practice semi automatic identification of digitized natural plankton samples: Ecotaxa.
JBR, AE and CD Debriefing of the week

3rd Week: Practice in autonomy

From Monday 15th November to Friday 20th November

All week (Zooscan Lab)

Flowcam/Zooscan Practical work:

Hands-on whole analytic procedure : Preparation of the samples and metadata,
imaging procedure sequence, process of the acquired images, prediction of



identification, automatic sorting, visual validation and vignettes extraction with JBR, AE and CD

Friday 20th November

Flowcam/Zooscan Practical work

Presentation Valentina

Debriefing of the week

To be determined

Talk MP: Example of another imaging system: UVP

Sampling at sea with local ship

Taxonomy for imaging: VIP3 plankton nomenclature and sorting concepts

4th Week: data analysis

Monday 23rd to Friday 27th November

All week (Zooscan Lab)

Interactive presentation: Results and data analysis. What can we do with FlowCAM and ZooScan data outputs? Tools and tips to add value and visualize your data.

Quality Check on images, classification and metadata, with JBR

Evening: social event, restaurant dinner

Friday 27th November

Final Debriefing



ANNEX IV



PERSEUS Training course
“Automated counting, sizing and recognition of plankton”
(14 Oct. to 15 Nov. 2013)
Laboratoire d’Océanographie de Villefranche sur Mer (LOV) – France

SATISFACTION SURVEY

When completed, please email back to : stemmann@obs-vlfr.fr

First name : [Natalia](#)
Last Name : [Bojanic](#)
Institution : [Institute of Oceanography and Fisheries \(IOF\)](#)
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Email : bojanic@izor.hr
Phone : [+385 21 408039](tel:+38521408039)

I. General feeling

1. The training corresponded with :

-the program announced in PERSEUS

YES	ALMOST	NOT MUCH	NOT AT ALL
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

-the general objectives announced in the program

YES	ALMOST	NOT MUCH	NOT AT ALL
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



2. globally this training was :

NOT SATISFYING

SATISFYING

VERY SATISFYING

3. Does this training enable you to reach your initial professional and personal objectives? *Remind your initial objectives here:*

YES / NO

I have chosen this training course since the main task of my research work is to study the quantitative and taxonomic structure, as well as the vertical distribution of ciliated protozoa and mikrometazoa assemblages in the Adriatic Sea. The microscopic analysis of zooplankton samples is quite time consuming, therefore the knowledge acquired during this course would greatly facilitate and expedite my work.



II. Organization of the training course

1. Organization of the training (please explain when you reply NO)

	YES / NO
The welcoming of participants was ok <input type="checkbox"/>	<input checked="" type="checkbox"/>
.....	
The schedule and timing of the training were satisfying <input type="checkbox"/>	<input checked="" type="checkbox"/>
.....	
The duration of the training is appropriate <input checked="" type="checkbox"/> <input type="checkbox"/>	
.....	
Availability of technical/training staff was ok <input type="checkbox"/>	<input checked="" type="checkbox"/>
.....	
General atmosphere was good <input type="checkbox"/>	<input checked="" type="checkbox"/>
.....	

2. Teaching and training approach

	YES / NO
The training/teaching approach was adapted to the topic of the training <input checked="" type="checkbox"/> <input type="checkbox"/>	
.....	
The tutorials' supporting materials and tools were adapted <input checked="" type="checkbox"/> <input type="checkbox"/>	
.....	



The teaching progression was satisfying



.....

The connection between the different modules of the training was relevant



.....

3. General comments on organization of the training course

In my opinion the organization of the training course was excellent, including communication with the administrative staff and colleagues who were directly involved in the training process as well as accommodation and social life in Villefranche and Nice. My special thanks goes to Professor Lars Stemmann and his assistants Amanda Elineau and Jean-Baptiste Romagnan, who were always ready to help in solving the problems and difficulties which I have encountered in my laboratory work.



III. Technical and scientific value

Value of the theoretical seminars and tutorials

VERY GOOD RELEVANT	GOOD	JUST RELEVANT	NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All seminars, lectures, protocols, scientific papers helped me to better understand the principle of sample analyses and data processing. Assistants have always tried to simplify the procedure as much as possible.

Value of the technical tutorials and practical work

VERY GOOD RELEVANT	GOOD	JUST RELEVANT	NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

With the generous assistance of both colleagues in the Laboratory I learned to operate the instruments in a relatively short period. Since the technical requirements for the programme to operate successfully on PC-s and laptops are demanding maybe it could be better specified in future training.

Overall scientific value of the training

VERY GOOD RELEVANT	GOOD	JUST RELEVANT	NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In my opinion, the overall scientific value of the training is more than sufficient. I learned to use two new devices that provide a wide range of data and potentially offer the possibility to improve and accelerate the analysis of zooplankton samples and laboratory work in some aspects.

General comments on technical and scientific value

As overall organisation, my comments and experiences on technical and scientific value of this workshop are very positive. The introductory lecture allowed me to gain a better insight into the working principle and processing of data obtained by ZooScan and FlowCAM. Since I did not have any experience in using these instruments it was complicated to understand how they work only on the basis of descriptions in the scientific paper. However, I had enough time to get acquainted with the operating mode of both instruments, even to prepare and analyse my own samples independently.



IV. Your skills and your lab / scientific practice

(please explain when you reply NO)

YES / NO

The training/teaching was beneficial for your lab/scientific practice

.....

The training/teaching permitted an update of your lab/scientific practice

.....

Since the end of the training have you had the possibility to put into practice the skills and knowledge acquired during the training?

YES NO PARTIALY

If YES or PARTIALY, how many times, or at which frequency? (*Write your answer below.*)

.....

If NO, why:

I have not had the opportunity

I have not had the opportunity yet, but I plan to put into practice the skills and knowledge acquired during the training, soon

The training was actually not adapted to my lab/scientific practice

The training was too late or too early for me

The training was not adapted to what I usually do / plan to do in my lab

The training level was not adapted to my own level

Finally, do you plan to develop in your lab the techniques you learned during the training?



YES / NO



Since the microscopic analysis of zooplankton samples is quite time consuming, the knowledge I acquired during this course can greatly facilitate and expedite my work. In my opinion, the combination of traditional microscopy and imaging systems is optimal for ecological studies of trophic relationships within the food web, since a high taxonomic resolution is not a priority in these studies. IOF is seriously considering the possibility of purchasing this equipment, particularly FlowCAM. The colleagues who deal with phytoplankton taxonomy and ecology are also interested in using this instrument. The obtained data of the phytoplankton and ciliate biomass are especially important for a better understanding of trophic relationships within the marine food web.

When completed, please email back to: stemmann@obs-vlfr.fr



PERSEUS Training course
“Automated counting, sizing and recognition of plankton”
(14 Oct. to 15 Nov. 2013)
Laboratoire d’Océanographie de Villefranche sur Mer (LOV) – France

SATISFACTION SURVEY

When completed, please email back to : stemmann@obs-vlfr.fr

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Last Name : Taglialatela
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Email : simone.taglialatela@icman.csic.es
Phone : +34-605414447

V. General feeling

4. The training corresponded with :

-the program announced in PERSEUS

YES	ALMOST	NOT MUCH	NOT AT ALL
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

-the general objectives announced in the program

YES	ALMOST	NOT MUCH	NOT AT ALL
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. globally this training was :

NOT SATISFYING	SATISFYING	VERY SATISFYING
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6. Does this training enabled you to reach your initial professional and personal objectives? *Remind your initial objectives here:*

YES / NO

Improve my expertise and skill in image analysis

.....



VI. Organization of the training course

4. Organization of the training (please explain when you reply NO)

The welcoming of participants was ok YES / NO

.....

The schedule and timing of the training were satisfying ■

.....

The duration of the training is appropriate □

Probably 3 weeks instead of 4 would be more appropriate.....

Availability of technical/training staff was ok ■

.....Was more than ok!!.....

General atmosphere was good ■

.....

5. Teaching and training approach

The training/teaching approach was adapted to the topic of the training YES / NO

.....

The tutorials' supporting materials and tools were adapted

The manual needs some adjustments. We already discussed about it.....



The teaching progression was satisfying



.....

The connection between the different modules of the training was relevant



.....

6. General comments on organization of the training course

The current structure of the course was extremely satisfactory for me, but I’ve been working with this technique quite a long time and I’m familiar with the whole process. If I have to think to a new user approaching this technique, some rearrangements come into my mind for the organization. I would suggest a more logical (in my opinion) sequence for the module of the course. The first approach should be (together with the very good introduction that you presented) an introduction about what can be and what cannot be achieved with those techniques. Even if this step could be counterproductive at the beginning, I think that the new user need to know exactly the limitations of the methods in order to understand properly all the steps of the process. The following step would me the preparation and scanning of the sample ant than the extraction with the specific purpose of the learning set building. From here, the following steps would be: LS improvement, processing and identification of new samples and validation. I also think that the final step about data extraction should deserve more attention even if is not listed among the objective of the course, because from a new user perspective I guess is a crucial step.

I’m not sure if this structure corresponds exactly to what we have done. Sometimes during the course I had the feeling that the progress was not linear, and for me it was easy just because I had a solid background that helped me to order the inputs that I received.

VII. Technical and scientific value

Value of the theoretical seminars and tutorials

VERY GOOD
RELEVANT

GOOD

JUST RELEVANT

NOT



<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:.....			
.....			
.....			

Value of the technical tutorials and practical work

VERY GOOD RELEVANT	GOOD	JUST RELEVANT	NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:.....			
.....			
.....			

Overall scientific value of the training

VERY GOOD RELEVANT	GOOD	JUST RELEVANT	NOT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:.....			
.....			
.....			

General comments on technical and scientific value

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VIII. Your skills and your lab / scientific practice

(please explain when you reply NO)

YES / NO

The training/teaching was beneficial for your lab/scientific practice

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The training/teaching permitted an update of your lab/scientific practice

.....

Since the end of the training have you had the possibility to put into practice the skills and

knowledge acquired during the training ?

YES

NO

PARTIALY

If YES or PARTIALY, how many times, or at which frequency? (*write your answer below*)

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If NO, why:

I have not had the opportunity

I have not had the opportunity yet, but I plan to put into practice the skills and knowledge acquired during the training, soon

The training was actually not adapted to my lab/scientific practice

The training was too late or too early for me

The training was not adapted to what I usually do / plan to do in my lab

The training level was not adapted to my own level

Finally, do you plan to develop in your lab the techniques you learned during the training ?



YES / NO



Please develop your answer here

The expertise that I gain with this course will be extremely helpful for my PhD dissertation. Zooplankton analysis with image analysis techniques is one of the main topic of my PhD and also is the methodology in which I'm most interested in for the processing of a big amount of sample that are waiting to be processed in my lab.

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When completed, please email back to : stemmann@obs-vlfr.fr

