

H2020-EINFRA-2015-1

VI-SEEM

VRE for regional Interdisciplinary communities in Southeast Europe and the Eastern Mediterranean



Deliverable D2.4 Training plan

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Status –Version: Final – e

Date: March 29th, 2016

Distribution - Type: Public

Abstract: Deliverable D2.4 – the “Training plan” - presents the analysis of survey needs and defines the plan for future activities related to national and regional training events that will take place during the project lifetime. It reports on the training infrastructure, together with the training platform, tools and materials that will be used, as well as quality assurance for the trainings, using the evaluation process.

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The VI-SEEM project is funded by the European Commission under the Horizon 2020 e-Infrastructures grant agreement no. 675121.

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Document Revision History

Date	Issue	Author/Editor/Contributor	Summary of main changes
March 02 nd , 2016	a	Sonja Filiposka	Initial version of ToC.
March 16 th , 2016	b	Ramaz Kvatadze, Peter Bogatencov, Neki Frasheri, Constantinos Lazarou, Emanouil Atanasov, Todor Gurov, Dusan Vudragovic, Vladimir Slavnic, Mohammed Tarek Elfaragy	Merged contribution from partners: GRENA, RENAM, UPT, CYI, IICT, IPB, BA
March 17 th , 2016	b	Sonja Filiposka, Anastas Mishev	Initial version of the deliverable
March 22 nd , 2016	c	Sonja Filiposka, Anastas Mishev	Finalized version of the deliverable that includes partners comments
March 23 rd , 2016	d	Sonja Filiposka, Anastas Mishev	Finalized version with Quality Control remarks implemented
March 29 th , 2016	e	Sonja Filiposka, Ognjen Prnjat	Final quality check and editing

Preface

In the last decade, a number of initiatives were crucial for enabling high-quality research - by providing e-Infrastructure resources, application support and training - in both South East Europe (SEE) and Eastern Mediterranean (EM). They helped reduce the digital divide and brain drain in Europe, by ensuring access to regional e-Infrastructures to new member states, states on path to ascension, and states in European Neighbourhood Policy area – in total 14 countries in SEE and 6 in EM.

This VI-SEEM project brings together these e-Infrastructures to build capacity and better utilize synergies, for an improved service provision within a unified Virtual Research Environment (VRE) for the inter-disciplinary scientific user communities in the combined SEE and EM regions (SEEM). The overall objective is to provide user-friendly integrated e-Infrastructure platform for regional cross-border Scientific Communities in Climatology, Life Sciences, and Cultural Heritage for the SEEM region; by linking compute, data, and visualization resources, as well as services, models, software and tools. This VRE aspires to provide the scientists and researchers with the support in full lifecycle of collaborative research: accessing and sharing relevant research data, using it with provided codes and tools to carry out new experiments and simulations on large-scale e-Infrastructures, and producing new knowledge and data - which can be stored and shared in the same VRE. Climatology and Life Science communities are directly relevant for Societal Challenges.

The driving ambition of this proposal is to maintain leadership in enabling e-Infrastructure based research and innovation in the region for the 3 strategic regional user communities: supporting multidisciplinary solutions, advancing their research, and bridging the development gap with the rest of Europe. The VI-SEEM consortium brings together e-Infrastructure operators and Scientific Communities in a common endeavor.

The overall objective is to provide user-friendly integrated e-Infrastructure platform for Scientific Communities in Climatology, Life Sciences, and Cultural Heritage for the SEEM region; by linking compute, data, and visualization resources, as well as services, software and tools.

The detailed objectives of the VI-SEEM project are:

1. Provide scientists with access to state of the art e-Infrastructure - computing, storage and connectivity resources - available in the region; and promote additional resources across the region.
2. Integrate the underlying e-Infrastructure layers with generic/standardised as well as domain-specific services for the region. The latter are leveraging on existing tools (including visualization) with additional features being co-developed and co-operated by the Scientific Communities and the e-Infrastructure providers, thus proving integrated VRE environments.
3. Promote capacity building in the region and foster interdisciplinary approaches.
4. Provide functions allowing for data management for the selected Scientific Communities, engage the full data management lifecycle, link data across the region, provide data interoperability across disciplines.

5. Provide adequate user support and training programmes for the user communities in the SEEM region.
6. Bring high level expertise in e-Infrastructure utilization to enable research activities of international standing in the selected fields of Climatology, Life Sciences and Cultural Heritage.

The VI-SEEM project kicked-off in October 2015 and is planned to be completed by September 2018. It is coordinated by GRNET with 15 contractors from Cyprus, Bulgaria, Serbia, Hungary, Romania, Albania, Bosnia-Herzegovina, FYR of Macedonia, Montenegro, Moldova (Republic of), Armenia, Georgia, Egypt, Israel, Jordan. The total budget is 3.300.000 €. The project is funded by the European Commission's Horizon 2020 Programme for Excellence in Science, e-Infrastructure.

The project plans to issue the following deliverables:

Del. no.	Deliverable name	Nature	Security	Planned Delivery
D1.1	Project management information system and “grant agreement” relationships	R	CO	M01
D1.2	3-Monthly progress report	R	CO	M03n *
D1.3a	First period progress reports	R	CO	M18
D1.3b	Final period progress reports	R	CO	M36
D2.1	Internal and external communication platform, docs repository and mailing lists	DEC	PU	M02
D2.2	Promotional package	DEC	PU	M04
D2.3	Dissemination and marketing plan	R	PU	M05
D2.4	Training plan	R	PU	M06
D2.5	Promotional package with updates	R	PU	M16
D2.6	1st Dissemination, training and marketing report	DEC	PU	M18
D2.7	2nd Dissemination, training and marketing report	R	PU	M35
D3.1	Infrastructure and services deployment plan	R	PU	M04
D3.2	Service registry, operational and service level monitoring	R	PU	M12
D3.3	Infrastructure overview, assessment and refinement plan	R	PU	M18
D3.4	VRE AAI Model and compatibility with other eInfrastructures	R	PU	M27
D3.5	Final infrastructure overview and assessment report	R	PU	M36
D4.1	Data sources and services deployment plan	R	PU	M06

D4.2	Description of the initial deployed data services	R	PU	M11
D4.3	Description of the final data platform available to VRE users	R	PU	M23
D4.4	Final report on data, services, availability and usage	R	PU	M35
D5.1	Detailed technical implementation plan for VRE services and tools	R	PU	M04
D5.2	Data management plans	R	PU	M06
D5.3	User-oriented documentation and training material for VRE services	R	PU	M13
D5.4	Report on integrated services and the VRE platform	R	PU	M14
D5.5	Final report on integrated services and the VRE platform	R	PU	M36
D6.1	Framework for VRE resource and service provision	R	PU	M09
D6.2	1st Report of open calls and integration support	R	PU	M20
D6.3	Sustainability and business model	R	PU	M24
D6.4	2nd Report of open calls and integration support	R	PU	M36

Legend: R = Document, report, DEC = Websites, patent fillings, videos, etc., PU = Public, CO = Confidential, only for members of the consortium (including the Commission Services).

* $n=1,2,3,\dots,12$

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References

- [1] Project VI-SEEM-675121 - Annex I - Description of the Action
- [2] VI-SEEM official website <http://www.vi-seem.eu/>
- [3] VI-SEEM Agenda System <http://events.vi-seem.eu/category/5/>
- [4] Joomla Content Management System <https://www.joomla.org/>
- [5] VI-SEEM Users survey results <https://docs.google.com/spreadsheets/d/1qU-SStGUhX5gDqIKWoY8MXz0J3gUxPmrijISalDH90I/edit#gid=553005760>
- [6] HEXAA project <https://sites.google.com/a/sztaki.hu/hexaa/>
- [7] VI-SEEM Training portal <http://training.vi-seem.eu:8083/>
- [8] VI-SEEM Training & Events announcements <https://vi-seem.eu/category/events-training/>
- [9] Indico Events Management System <http://indico-software.org/>
- [10] PRACE project <http://www.prace-ri.eu/>
- [11] EUROPEANA labs <http://labs.europeana.eu/>
- [12] ARIADNE <http://www.ariadne-infrastructure.eu/>

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Glossary

AAI	Authentication and Authorization Infrastructure
CAM	Community Atmospheric Model
CC	Climate Community
CH	Cultural Heritage
CHARMM	Chemistry at HARvard Macromolecular Mechanics
CUDA	Compute Unified Device Architecture
DICOM	Digital Imaging and Communications in Medicine
DoA	Description of Action
EM	Eastern Mediterranean
EU	European Union
EUDAT	EUropean DATa infrastructure
GIS	Geographic Information System
GROMACS	GRoningen Machine for Chemical Simulations
GPGPU	General Purpose computing on Graphics Processing Units
GPUs	Graphics processing Units
HEXAA	Higher Education eXternal Attribute Authority
HPC	High Performance Computing
IT	Information Technology
LS	Life Science
MECCA	Module Efficiently Calculating the Chemistry of the Atmosphere
MD	Molecular Dynamics
MPI	Message Passing Interface
NAMD	Nanoscale Molecular Dynamics
NCAR	National Centre of Atmospheric Research
NCL	NCAR Command Language
OpenMP	Open Multi-Processing
PRACE	Partnership for Advanced Computing in Europe
PSC	Project Steering Committee
QM	Quantum Mechanics
SEE	South East European

SEEM	South East Europe and Eastern Mediterranean
VHO	Virtual Home Organization
VI-SEEM	VRE for regional Interdisciplinary communities in Southeast and the Eastern Mediterranean
VRE	Virtual Research Environment
WRF	Weather Research and Forecasting

Executive summary

What is the focus of this Deliverable?

The focus of this deliverable is to define the objectives of the project's training activities, to present the initial plans for organization of the training activities, and to describe the materials, tools and infrastructure that will be provided and used for these activities. In particular, it gives details on the process used for the identification of the training needs and requirements from the target user communities and the development of the appropriate training modules and events. It also defines the training organization procedure with evaluation for quality assurance of the training events.

What is next in the process to deliver the VI-SEEM results?

The deliverable is described in the project Annex-I - Description of Action [1]. The presented plan is expected to be refined during the project lifetime adapting to the new project developments that might occur. The training requirements survey that provides input into the training requirements analysis is performed in collaboration with WP5, and the provisioning of the training infrastructure will be organized in collaboration with WP3. The specific training materials will be made available on the training platform in collaboration with WP4 and WP5. The results from the training activities taking place during the first 18 months of the project will be reported in the deliverable D2.6 “1st Dissemination, training and marketing report”, due in M18, and the corresponding results from the next period in the final revision in the deliverable D2.7, due in M35.

What are the deliverable contents?

The deliverable describes in detail the envisioned training plan together with the training objectives, training materials and infrastructure, as well as the training agenda. The provided information includes an analysis of the training requirements survey that was given to the users. Based on the results of the analysis, the deliverable also provides an initial customized agenda for regional and national training events, and defines the organization, evaluation and reporting procedures.

Conclusions and recommendations

The presented plan for training is to be implemented by VI-SEEM partners, in-line with the Annex-I - Description of Action [1], and has been specifically customized according to the results obtained from the user survey of the training requirements. The survey covers general training aspects as well as focused training required by the three Scientific Communities: Climatology, Digital Cultural Heritage and Life Sciences. The plan will enable organization of highly effective training events, which will transfer the necessary technical skills to the regional and national specific user communities and help them in the efficient

use of the available computing and data storage resources whether in the form of HPCs, grid or cloud resources on which big data problems can be run. The presented plans for organization of training events are to be realized during the lifetime of the project, with special emphasis on the regional training events, which are to be organized between M08 and M25. With the gathered training materials provided via a specialized training platform, and the training infrastructure ready, the specific training modules for each event will be prepared according to the results of the survey on training requirements. The results from the training activities will be continuously revised, in order to ensure high-quality training and adaptation of future events according to the trainees’ feedback.

1 Introduction

This deliverable defines the initial plan, organization and setup for the training activities within WP2 – Communication, Marketing, Training and Innovation of the VI-SEEM project.

The training activities of the project present an essential type of support to user communities from the three supported fields (Climatology, Digital Cultural Heritage, and Life Sciences). The transfer of knowledge and technical skills during the regional and national training events will benefit our user communities in several regards. The newly acquired knowledge will enable them to start using or to more efficiently use the available computational and data storage resources (HPC, grid, and/or cloud based). It will also give them practical experience in optimizing and/or porting scientific code to various available computing infrastructures. In addition, it will enable them to efficiently use the available resources and data processing capabilities, and the VRE itself, in the production stage, and deploy new applications and services.

The training activities within the VI-SEEM project will be based on the solid trainer community already existing in the region, created by the previous initiatives. The initial training plan is based on the results of a brief survey of training needs and requirements for the three user communities. It provides an overview of the identified training modules which will be partly reused from previous available material, but also specifically developed by WP2 in collaboration with WP3, 4 and 5. WP2 will act as a maintainer of the training material repository, and will support trainers with information how to reuse the already available training materials.

The core-targeted audience for the training are the application developers and end-users, which will be targeted through generic and specialized developer training events closely related to the needs of the 3 Scientific Communities. Overall quality of trainings is to be assured by training policies and constant monitoring of the training events through reports and questionnaires.

The identification of the training requirements and needs is the first topic of this deliverable. The gathering of the initial training materials and the development of the training platform are described next, followed by information on the way the available infrastructure will be used for training events and support. The main information provided is the initial training activities plan covering a number of regional and national training events on different topics of interest to the supported users. The last part is dedicated to the quality assurance and the way the effects of the training events will be measured. The information provided in this deliverable will be further revised and regularly updated during the project lifetime so that it reflects all training related activities and is well adjusted to the requirements of the supported scientific communities and application developers.

2 Project training objectives

The main goal of the training plan and activities is to foster VRE services take-up among the partner communities. The ease of end-user access to the offered services is to be achieved via a broad range of planned training events and opportunities closely cross correlated with the rest of the activities in the project. Thus, the quality of the training plan is of great importance for the successful liaison with the VRE user communities, but also other prospective partners. It provides an agenda for training events that is specifically tailored so as to cover the user requirements. It also introduces a training platform and initial training materials that will become an indispensable repository of easy to access and use information for all prospective users of the offered services.

The training-related activities in WP2 will aim to speed up significantly the learning (or incubation) process of new users and application developers, raise the regional expertise and end-user adoption, and manage the innovative project and community developments. The training plan is the first major step towards the goal of developing and implementing a comprehensive general and VRE-specific training program, aiming to enable end users to efficiently use the available storage resources, scalable infrastructure and related services.

WP2 aims to define and provide a “VRE evolution path” for the attracted potential clients via a set of generic training courses targeting all three related research communities, and also specific community-related training courses (VRE specific end-user and application developer). This activity is thus very strongly focused on enhancing the end-user access to the services. A special attention is also given to cross disciplinary training designed so that different user communities can benefit from existing competences in the VRE.

Outreach is focused on specific existing and new user communities in order to reach a critical mass of VRE users. The training events are organized as minimum 4 regional end-user training events, both community-specific and cross-disciplinary. These are complemented with 9 national training events throughout the project duration targeted mainly for local user communities and developed according to their specific requirements.

The training events will seek to cover the wider spectrum of the VRE community, with significant regional events bringing together the user community, thus fostering broad cooperation and knowledge exchange.

The main training channel will be face-to-face training events, and their initial agenda is presented in this document. This agenda will be regularly revised and updated according to the needs of the supported Scientific Communities. In addition to this, the VI-SEEM training platform will contain all training material and documentation gathered and created during the course of the project, as well as links to other selected material available elsewhere. Thus, on-line training and user support are also provided via the training platform developed.

3 Training requirements survey and analysis

In order to identify and capture training requirements and needs of the supported Scientific Communities from the fields of Climatology, Digital Cultural Heritage, and Life Sciences, WP2 in collaboration with WP5 prepared an extensive user survey that targets the requirements, status, infrastructure, development plans and related details needed for different WPs within the project. The user training requirements section that is part of the extensive user survey is provided in Appendix A: Training requirements survey - which is part of this deliverable. The information collected using this survey has been used for preparation and planning of the regional and national training events, and is presented in detail in this section.

3.1 Training requirements survey

A specific section within the user survey has been dedicated to the user training requirements. The section is divided into two main parts:

1. General

This section contains several questions related to training requirements that address the general use of the available HPC or Grid infrastructure, together with general use of cloud based tools and big data solutions that could be of use to the three targeted Scientific Communities. The listed tools were chosen depending on available infrastructure and the problem nature that each Scientific Community faces. For each of the tools the users were asked to define the level of training (if any) they would require; and

2. Specific Scientific Community-oriented

Depending on which Scientific Community the user belongs to, they needed to provide answers to a specifically developed group of questions that relate to his/her requirements for training for a given set of tools that have been identified as popular and/or necessary for the given community. Thus, the survey contains three different subsections, i.e. for the Climatology, Digital Cultural Heritage, and Life Sciences community, respectively. The listed tools, methods, codes, techniques or software were chosen according to the available information from the corresponding partners in VI-SEEM, which is also available in the “Project VI-SEEM-675121 - Annex I - Description of the Action” [1]. For each of the provided options, the users were asked to define the required level of training (if any) they would like to receive during the national and/or regional training events. They were also asked to provide comments or any other thoughts on other solutions or tools that are of great interest to them and would be beneficial for their future use.

The overall training related part of the survey was comprised out of 13 questions, but each targeted Scientific Community was asked to answer no more than 5 questions. In this way

we ensured that the questionnaire is not too tiresome to the users and that they will answer without losing focus or interest for the survey.

3.2 Training survey results analysis

The complete user survey was conducted by Cyl as leading partner of WP5 where all questions from all sections of the survey were provided in a consistent format using GoogleForms, and the results were provided in a GoogleDoc spreadsheet format [5].

The VI-SEEM users survey has received 45 responses, out of which:

- 15 from the Climatology Scientific Community,
- 15 from the Life Sciences Scientific Community, and
- 12 from the Digital Cultural Heritage Scientific Community,
- with only 3 mostly empty responses, most likely due to an unidentified error during completion of the survey.

The users that filled out the survey include all partners of the consortium as well as target user communities and thus represent the complete target community as a whole. The equal distribution of responses from all Scientific Communities together with the large number of responses has provided us with a training requirements sample that can adequately reflect the training requirements of the complete user community that the future training events will cover.

Regarding the section dedicated to training requirements, the in-depth analysis of the users' survey responses has highlighted the current status of the training requirements of the targeted audience, and their expectations from the activities that are planned in this deliverable.

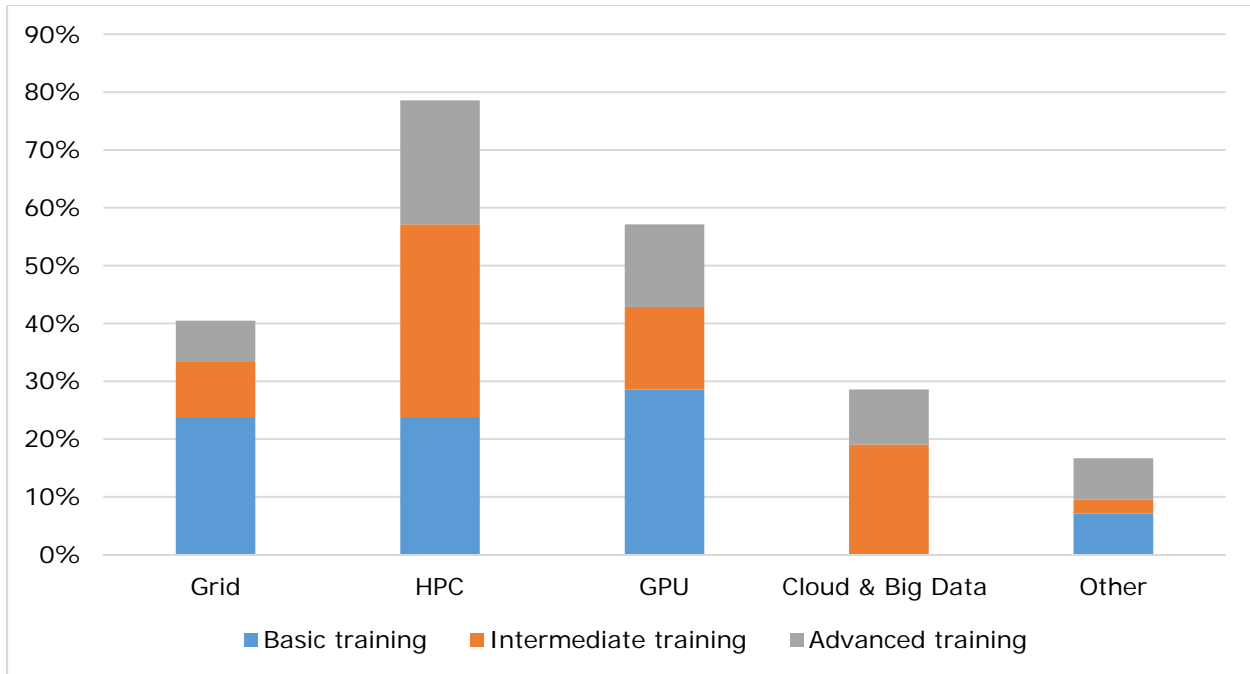


Figure 1: General type training requirements

Starting from the requirements for general training, most of the users (close to 80%) that completed the survey have expressed requirements for a given level of HPC infrastructure usage training, see Figure 1. There is also high demand for GPU related training, while Grid training is in the third place. It is interesting to note that none of the users feel they need any basic training in cloud computing, however 1/3 of the community would like to receive some intermediate to advanced cloud computing training. The lowest interest in general purpose training was conveyed for Big Data tools, where it seems that there is high discrepancy within the user community with the number of users requiring basic training almost equal to the total of users requiring advanced training. However, we must not overlook the fact that the shortage of user interest in training could also mean that they are not familiar with the given technology and thus are not aware of the advantages it can provide for their research efforts.

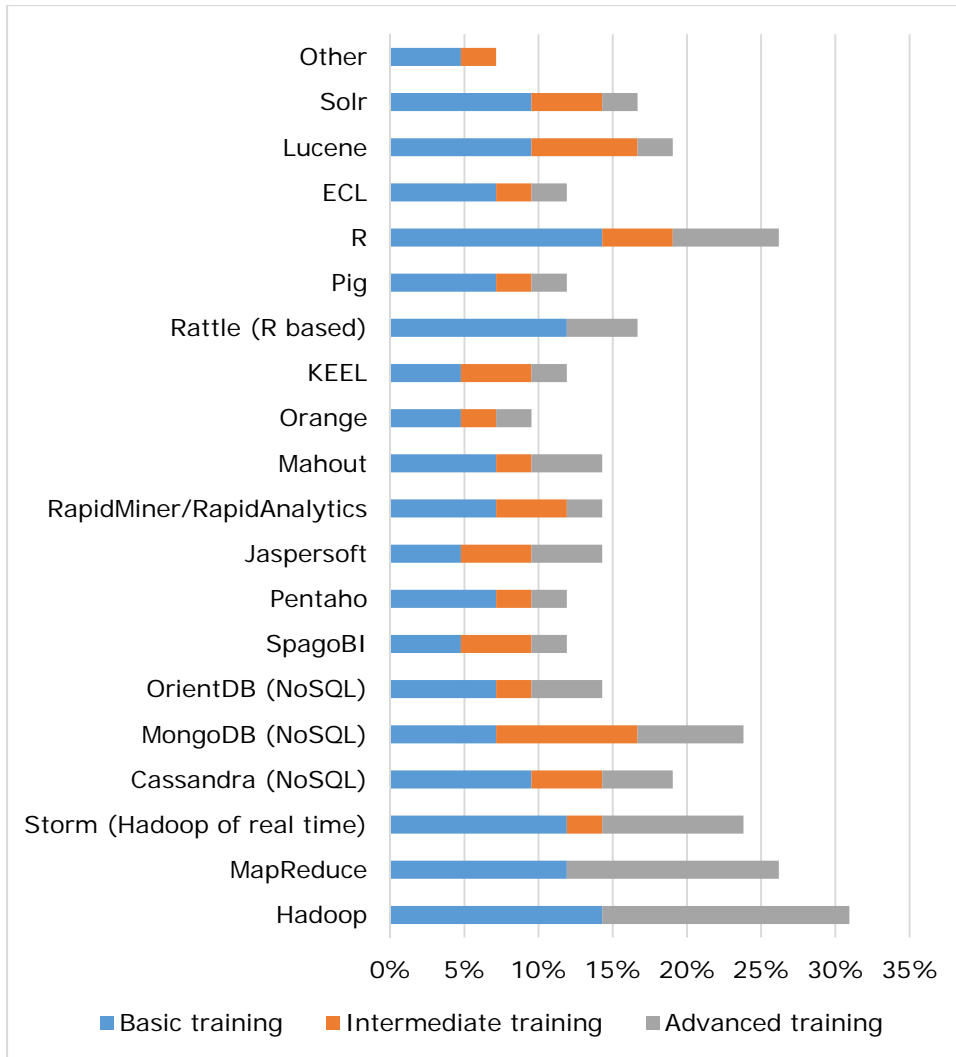


Figure 2: Data related training requirements

Focusing on the data-related training and the various tools available, see Figure 2, the results show that the greatest interest is to provide training in the usage of the R programming language, and the Hadoop and MapReduce tools as one of the most popular big data analysis platforms and tools. Here again we encounter the discrepancy between the current user knowledge for the given topic, they are either requiring basic introduction to the tool, or advanced topics that will help them get the most out of the technology. There is also a fair interest into non structured data warehousing (NoSQL based databases) which is due to the nature of the data that the specific targeted Scientific Communities are faced with.

Another general review of the training requirements is provided concerning the type of technology, Figure 3. The highest interest is in GPU related programming languages, as well as parallel programming techniques like MPI. Although VI-SEEM is not the first project that tackles with high performing infrastructures it is interesting to note that as the interest in the user communities evidently rises, there is still a large body of targeted users that require basic training in using the available infrastructure. This is especially emphasized with the results obtained for the training on how to access the infrastructure and data available. Next to these are the requirements for statistical analysis and data mining techniques together with visualization techniques, programming languages and compilers. The results show that although the three Scientific Communities have very specific areas of expertise, they do have lots of commonalities especially in the area of general technologies that they use in order to solve the particular problems that belong to their domains.

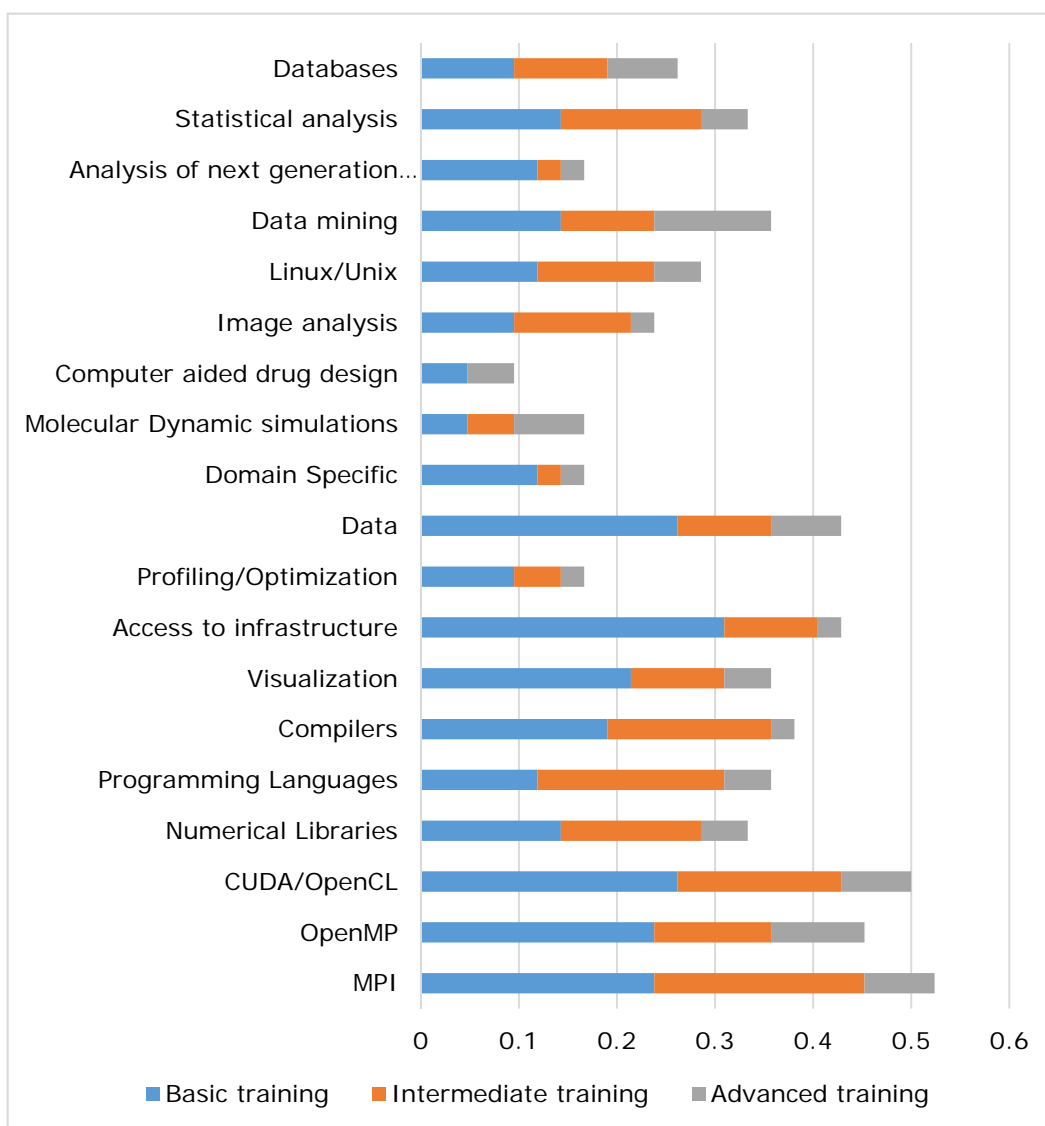


Figure 3: Type of technology training requirements

Another important issue are the requirements for advanced user support for users that are already familiar with the available infrastructure and common tools and need support while working, see Table 1. The users’ answers [5], have shown that this type of support is very important to them and the VI-SEEM project must rise to the challenge and provide this requested support to them via the training platform, materials and related documents and supporting activities.

All Scientific Communities	Scientific Community			Advanced user support for
	Life Sciences	Climatology	Digital Cultural Heritage	
48%	67%	60%	8%	MPI
33%	67%	20%	8%	OpenMP
29%	47%	13%	25%	CUDA/OpenCL
29%	40%	27%	17%	Numerical Libraries
19%	27%	13%	17%	Programming Languages
33%	47%	27%	25%	Compilers
21%	27%	7%	33%	Visualization
36%	33%	40%	33%	Access to infrastructure
19%	33%	13%	8%	Profiling/Optimization
24%	53%	7%	17%	Data

Table 1: Requirements for advanced user support

Delving deeper into the general training requirements for each separate Scientific Community, the results from the survey have provided us with the necessary information on how to reinforce the regional and national training events with the topics that are of the most importance to the targeted user communities.

For the Climatology Scientific Community, see Table 2, the answers of the users’ survey given by the users belonging to this Scientific Community, show that they are interested in:

- Intermediate and advanced HPC training
- Basic GPU training
- R language training
- Basic CUDA, MPI and OpenMP
- Basic training in accessing the infrastructure
- Advanced WRF-Chem model
- Advanced LAS training (visualization)
- Basic NCL and R tools training.

All levels	Level of required training			Models/Software/Tools
	Basic	Intermediate	Advanced	Climate and weather forecast model
33%	0%	7%	27%	WRF
47%	13%	0%	33%	WRF-Chem
27%	7%	7%	13%	ECHAM (EMAC)
20%	7%	7%	7%	RegCM
7%	7%	0%	0%	MM5
0%	0%	0%	0%	DREAM
13%	0%	7%	7%	Other, please specify
				GIS software
33%	0%	20%	13%	GrADS
27%	13%	0%	13%	ParaView
33%	20%	7%	7%	FERRET
27%	13%	13%	0%	ArcGIS
13%	13%	0%	0%	ENVI
33%	33%	0%	0%	LAS
7%	0%	7%	0%	Other (please specify):
				Related Tools
47%	27%	20%	0%	NCL
47%	27%	13%	7%	R
33%	20%	7%	7%	Python
20%	13%	7%	0%	IDL
0%	0%	0%	0%	Other (please specify):

Table 2: Results from the Climatology specific training requirements analysis

The users that represent the Life Sciences Scientific Community have pointed out the general requirements of this community (Table 3) to be:

- Advanced and intermediate HPC training
- Advanced GPU training
- Advanced cloud and big data training
- Advanced Hadoop/MapReduce training
- Basic and intermediate MPI
- Basic OpenMP and infrastructure access training
- Advanced data mining
- Advanced GROMACS training
- High interest in training for data visualization.

Total	Need for training			Data analysis methods
	High	Intermediate	Low	
27%	13%	13%	0%	Capture
33%	7%	27%	0%	Curation
47%	33%	13%	0%	Analysis
47%	33%	13%	0%	Search
40%	20%	20%	0%	Sharing
53%	40%	13%	0%	Visualization
7%	7%	0%	0%	Other, please specify
All levels	Level of training required			Tool
	Basic	Intermediate	Advanced	
7%	0%	7%	0%	ChemBioserver
13%	0%	13%	0%	PepServer
33%	0%	13%	20%	NAMD
40%	0%	13%	27%	GROMACS
7%	0%	7%	0%	PLOS Text Mining Collection
20%	7%	7%	7%	BWA
13%	7%	7%	0%	Picard
13%	7%	7%	0%	GATK
13%	7%	7%	0%	Other (please specify):

Table 3: Training requirements specific to the Life Sciences Scientific Community

Users from the Digital Cultural Heritage community (Table 4 and Table 5) are interested in receiving training that will be covering the following topics:

- Basic GRID, HPC and GPU training
- Intermediate big data and cloud related training
- Basic CUDA training
- Basic Visualization and access to infrastructure training
- Basic statistical analysis training
- Basic image processing and visualization techniques
- Basic MEDICI, SOL and 3DINV training.

Total	Need for training			DCH related techniques
	High	Intermediate	Low	
47%	27%	13%	7%	advanced content management systems
47%	27%	13%	7%	data repositories
53%	40%	7%	7%	visualization
53%	33%	20%	0%	computational intensive workflows and querying
53%	40%	7%	7%	content-based image retrieval (CBIR)
53%	27%	20%	7%	Image processing and machine learning algorithms
53%	33%	20%	0%	GPU based algorithms for image classification
7%	0%	7%	0%	Other, please specify

Table 4: Training requirements for techniques related to the Digital Cultural Heritage Scientific Community

All levels	Level of required training			Tools, codes, models
	Basic	Intermediate	Advanced	
8%	8%	0%	0%	Osteoware
42%	33%	8%	0%	MEDICI
33%	17%	8%	8%	Algorithms for remote sensing image classification
42%	17%	17%	8%	Algorithm for aerial image classification
17%	8%	8%	0%	ImaNote
25%	25%	0%	0%	Soft Ontology Layer (SOL)
8%	8%	0%	0%	idPromo
17%	17%	0%	0%	InViTo
33%	25%	8%	0%	3DINV
17%	17%	0%	0%	AutoGRToolkit version 3.2
8%	8%	0%	0%	DAR
8%	8%	0%	0%	Osteoware
8%	0%	8%	0%	Other (please specify):

Table 5: Training requirements for tools, codes and models related to the Digital Cultural Heritage Scientific Community

The initial conclusions of the users' survey analysis can be summarized as follows. Great attention should be given to providing dissemination and training events that will aim at introducing the technologies relevant to all Scientific Communities. An initial training that will introduce the access to the infrastructure should be made available to all interested users. The best approach would be to adopt the webinar concept, that will end with a publicly available video recording, which can then be freely accessible via a video library that can be part of the future versions of the training platform. These general requirements for the trainings than need to be blended with specific training for each Scientific Community according to the results from the survey. Also, it is of great importance to provide adequate advanced user support especially for the Life Sciences and Climatology Scientific Communities.

4 Training infrastructure

Integration of available computing and storage resources into project infrastructure started from the first month of the project. Most of resources are already available and used by service developers. In total, the infrastructure will deliver 18.8 million CPU hours, 371.6 million GPU hours, 16.0 million Xeon Phi hours, 5.3 million IBM Cell CPU hours, and 1.6 million Grid CPU hours per year, as well as 468 virtual machine cores to the scientific communities. As a part of the infrastructure, a set of operational tools for resource monitoring and management will be deployed, and user support will be provided. Service management and discovery will be enabled via a service registry.

For training purposes the very same infrastructure will be used. Distributed and secure authentication and authorization infrastructure layer, described in Deliverable D3.1 - Infrastructure and services deployment plan, will handle creation and management of identities and access policies during the training and demo events. For this purpose, a dedicated Virtual Home Organization (VHO), an identity provider for sponsored identities, will be set up. Training participants will be sponsored either by an individual (every user with an active organizational identity may create sponsored identities), or by a community (authorized personnel of groups managed in HEXAA [6]). Training participants can choose whether to register a new set of credentials (username and password) or to use their existing social identity (Facebook, LinkedIn, Google+) for authentication purposes.

Authentication and authorization infrastructure layer is expected to be in production by M09. Meanwhile, training event organizers will manage access to the infrastructure manually, by creating needed training accounts and giving them appropriate permissions to access available services.

5 Training material and platform

A major objective for the VI-SEEM project is to provide training and support for the users of the Virtual Research Environment. As part of this effort, the project will collect, preserve and make available existing and new material which will be created for the various training events organized by the VI-SEEM community. This material will be made available through the dedicated project training platform. The structure for the training material and the VI-SEEM training platform is described below.

5.1 Training material

In addition to the provision of computing and storage resources, and domain-specific services and tools for scientists, the VI-SEEM project will provide training and support to users of the Virtual Research Environment. For this purpose, a training platform will be developed which will enable the collection and curation of the training material. The VI-SEEM training platform will offer training material in the following three generic and three domain specific theme areas:

1. HPC, Cloud and Grid computing: This area entails training material such as tutorials, presentations and other for High Performance Computing, Cloud and Grid computing.
2. Development and programming: This theme area entails tutorials, presentations and documentation on topics that are relevant to developers, such as code development, parallel programming, code improvement and performance analysis.
3. Visualization: Training material in this theme area will address the use of computing resources for data visualization, and 3D visualization of phenomena and objects.
4. Domain specific material: This theme area will entail three distinct sub-categories, one for each Scientific Community. The aim is to collect, curate and make available domain specific training material, such tutorials and presentations. For example, tutorials on the use of climate models, 3D reconstruction pipelines, or life science production programs will be provided in these sub-categories.

The training material gathered by the project will entail both existing and new material which will be created during the lifetime of the project. This way the project will enable the collection and preservation of the material created as part of the training events organized by the VI-SEEM community. Material will be in the form of documents, e.g., pdf and ppt files, or videos, e.g., recorded presentations or training courses, or via direct access to other resources with similar content, e.g., PRACE training portal [10], EUROPEANA Labs [11], and ARIADNE resources [12].

5.2 Training platform

The VI-SEEM training portal, Figure 4, is developed with the use of the open-source content management system Joomla [4].

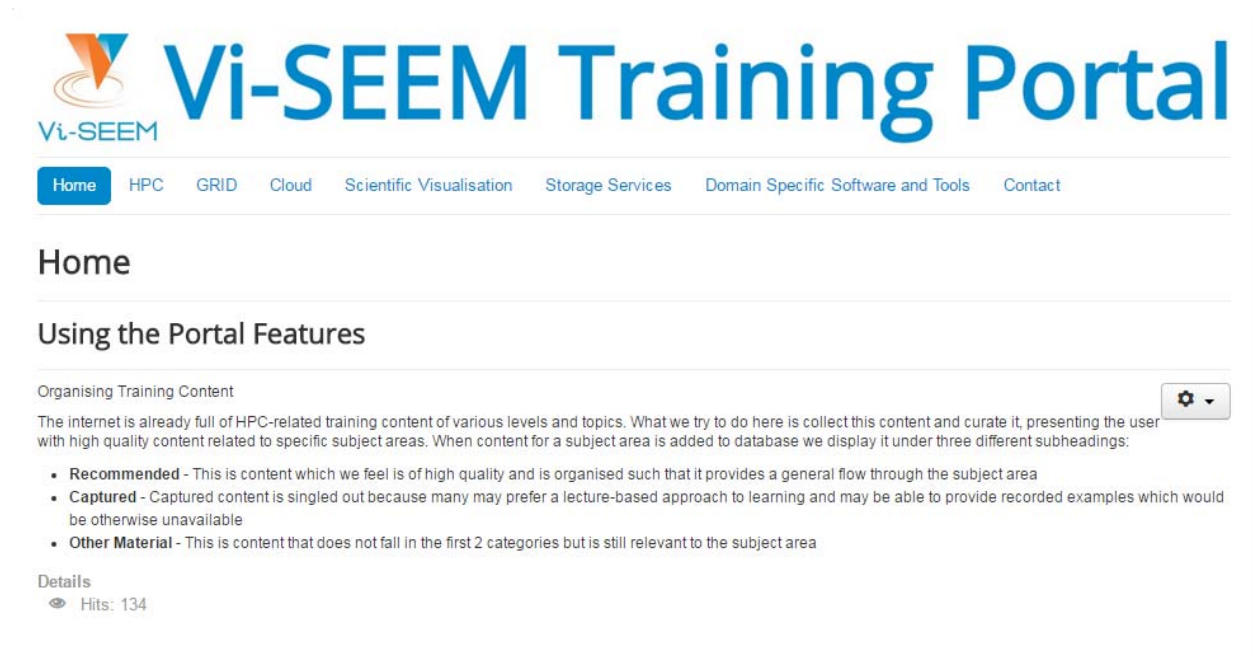


Figure 4: The VI-SEEM training portal

The portal will be structured so that the user can have easy access to the training material. Navigation through the portal will be facilitated through a menu which will be structured in way that reflects the thematic areas defined in section 5.2. In particular, the portal menu will entail the following thematic categories:

1. High Performance Computing
2. Grid Computing
3. Cloud Computing
4. Scientific visualization
5. Storage services
6. Domain specific software and tools

This latter category is further divided into the following three sub-categories:

1. Climate software and tools
2. Digital Cultural Heritage software and tools
3. Life Sciences software and tools

The current version of the training portal is already offering training material for High Performance Computing, including development and code improvement. Also, training material for the scientific visualization category is available. The material for Grid and Cloud computing is already gathered and in the process of being added next. For the domain specific software and tools there is also training material ready for use such as tutorials for CHARMM, NAMD, GROMACS, and Computer-aided drug design using Schrodinger Suite and ChemBioServer. The training platform will continue to be expanded over time. The main focus during the lifetime of the project is to develop and add high quality training material for the domain specific software and tools, while continuing to add to the library of gathered training material for the general applications and uses.

6 Training activities plan

The VI-SEEM project plans to organize a number of regional and national events targeting end-users and developers that belong to the targeted Scientific Communities. The presented analysis of the users’ survey related to the training requirements will be used as a basis for defining the level and content of each of the planned training events. The training material will be constantly updated on the training platform, while the available infrastructure will be made available for each scheduled training event in coordination with the corresponding WP.

After the finalization of this deliverable, all of the planned training events will be scheduled and announced on a unified VI-SEEM Agenda system. The system will not only announce the training event and the logistic information but it will also contain information on where to access the training material, how to use the training platform, plus additional information on the outcome of the training after it finishes, namely report on the training and survey of the trainees and their experience in order to ensure high quality training events.

6.1 Training program

Figure 5 presents the timeline distribution of the planned VI-SEEM training events per month for the full duration of the project.



Figure 5: Timeline of planned regional and national training events

Table 6 lists the planned training events and relevant project months. At this point the plan is indicative and it includes the major fixed events, the regional trainings, and the projected national training events. Updates to the plan will be reported and approved during Project Steering Committee (PSC) meetings. The corresponding deliverables D2.6 and D2.7 will report on the actual organization and results of these training events.

Project Month	Organizer [partner]	Country	Framework [national/regional]
M07	11-RENAM	MD	National
M11	09-UKIM	MK	National
M13	14-BA	EG	Regional
M13	13-GRENA	GE	National
M17	04-IPB	RS	Regional
M20	02-CyI	CY	Regional
M20	11-RENAM	MD	National
M23	12-IIAP-NAS-RA	AM	National
M24	06-UVT	RO	National
M25	03-IICT	BG	Regional
M25	07-UPT	AL	National
M26	02-CyI	CY	National
M32	11-RENAM	MD	National

Table 6: VI-SEEM plan for training events

An overview of the distribution of the training events per VI-SEEM partner country is presented in Figure 6.

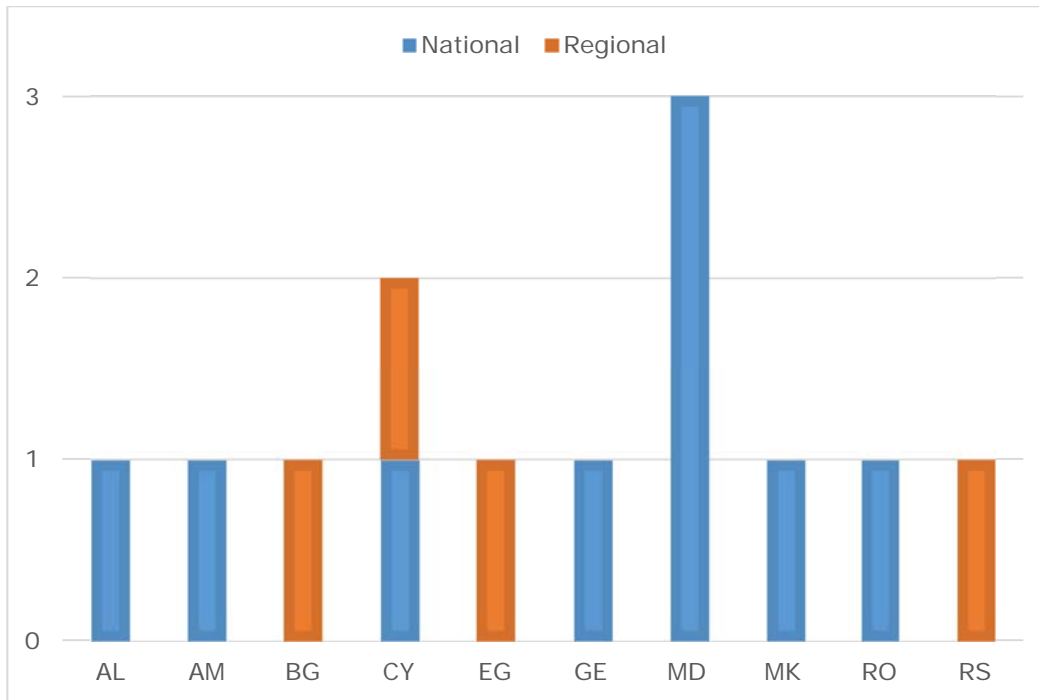


Figure 6: Per country distribution of the planned training events

6.1.1 Event organization procedure

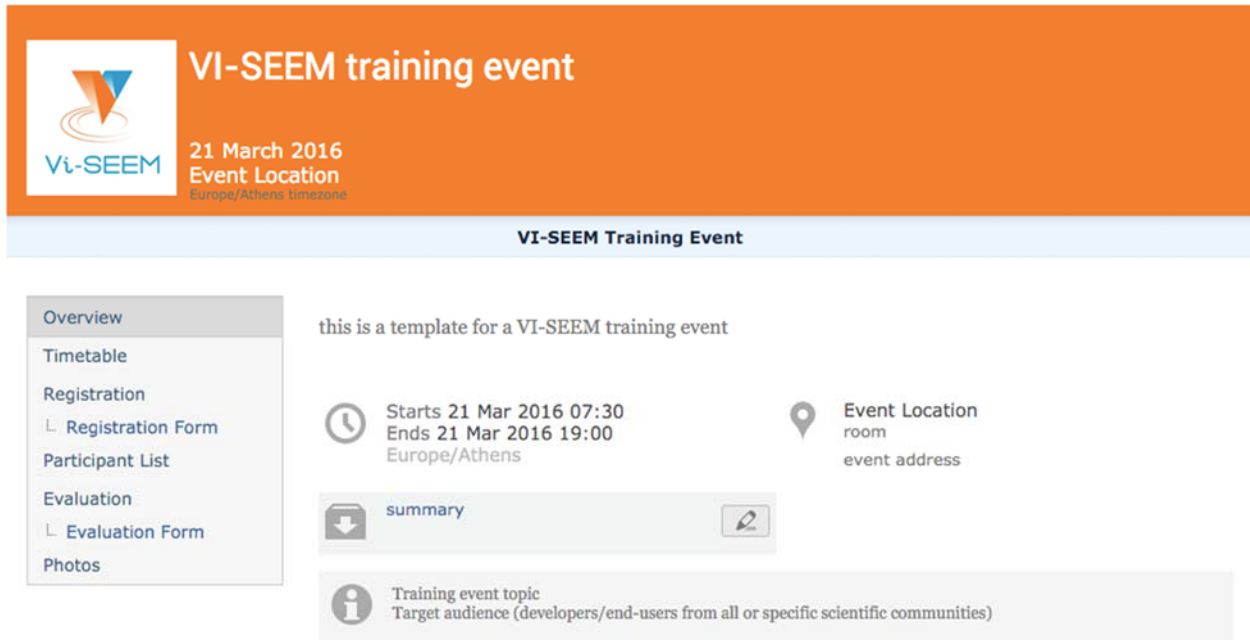
All training events must be publically announced in advance on the VI-SEEM project portal [8], see Figure 7. The full detailed information about the training event will be available on the VI-SEEM Agenda system [3] that is based on the Indico events management system [9]. Within the Agenda System for each training event there will be: a registration page, collection of specific presentations and related material together with the relevant links to the training platform, the evaluation survey form and link to the completed training summary report, plus additional data and information if available.

In cooperation with the other WPs, the infrastructure will be prepared for a training event and all necessary training materials will be made available via the training platform. A training event ToDo checklist has been prepared in order to help remind the training event organizers to all of the major steps involving the preparation and organization of the training event, see Appendix B Training organization procedure.

At the end of each training event the trainees will be asked to fill out a training event survey that will provide insight into the quality of the delivered training, and will be used as input

for the organization of future training events. The content of the training evaluation survey is given in Appendix C - Training evaluation survey.

Upon finishing the training event, the event organizers need to fill out a training event report that will highlight the training activities that took place, report on training statistics (number of trainers, number of trainees, topics covered, level of training, interested audience, etc.). The structure of the report is given in Appendix D - Training event summary report.



VI-SEEM training event
21 March 2016
Event Location
Europe/Athens timezone

VI-SEEM Training Event

Overview
Timetable
Registration
 ↳ Registration Form
Participant List
Evaluation
 ↳ Evaluation Form
Photos

this is a template for a VI-SEEM training event

🕒 Starts 21 Mar 2016 07:30
Ends 21 Mar 2016 19:00
Europe/Athens

📍 Event Location
room
event address

summary

📄 Training event topic
Target audience (developers/end-users from all or specific scientific communities)

Figure 7: Training events announcements page

6.2 Regional training events

There are 4 regional training events planned for the duration of the project. The events have been developed to target specific user communities that are central to the project. Thus, there is one regional training event for end-users of each of the targeted Scientific Communities, and one cross-disciplinary training event that will cover the topics that are common for all three communities. Extra training events might be also scheduled, ex. specialized developers training, depending on the dynamics of the project activities.

6.2.1 M13: Digital Cultural Heritage training

The regional training in Digital Cultural Heritage will provide training for one of the four identified groups in this Scientific Community that are interested in 3D digitization and interactive presentation.

This event aims to briefly cover both theoretical and practical sides of artefact digitization. The workshop will discuss 3D scanning, photogrammetry and Reflectance Transformation imaging with hands-on sessions for object digitization, from start to finish.

Moreover, the event will discuss a well-established pipeline for processing digitized objects to be used in real-time virtual environment and virtual reality contexts. The discussion will include finished projects done in BA as case studies, covering possibilities, limitations and future potentials.

6.2.2 M17: Climate training

The regional climate training will be organized at the Institute of Physics in Belgrade, Serbia around M17. The focus of this event will be put on using the available climate services (produced for the 1st Call for Access), but it will also facilitate development of services, best practices, and lessons learned during the 1st phase of service development that will result in the 1st Call for Access. Agenda of the training will be discussed and decided upon by M14 within WP2, since the training is scheduled for the second year of the project and it should build upon the outcomes of the previous events.

6.2.3 M20: Cross-disciplinary training

In terms of training events, according to the DoA [1], Cyl will organize a cross disciplinary training event in May 2017 (M20). Because Cyl will be hosting a PRACE [10] seasonal school in the spring of 2017, we are planning to have the VI-SEEM training event in conjunction with the PRACE seasonal school. For this reason, the cross-disciplinary event may need to be moved to April 2017 (M19) and not May 2017, since the PRACE 4IP projects ends in April 2017.

The three-day training event will be held on the premises of Cyl, and will follow two tracks. The first one will offer training for HPC system’s administrators, and the second one will offer training on HPC computing to members of the VI-SEEM and PRACE communities. The first track will provide state of the art training in modularized software installation, cluster and site networking, system and network monitoring, workload managers, system administration tools, and cloud and data services. The second track will offer training on HPC compute, data management, and domain specific services available at different resources including HPC, cloud and grid. Computational scientists from various fields, such as climate, life sciences, cultural heritage etc., will have the opportunity to attend training

sessions which will cover HPC, accelerators programming with focus on I/O for large data sets, data processing, analysis and visualization.

6.2.4 M25: Life Sciences training

The regional training for the Life Sciences community will be organized by ICT-BAS during the month of October, 2017 in Sofia, according to the current plan.

The VI-SEEM Life Science user community currently consists of 12 research institutes from 9 different countries of the region. Initially 13 applications were selected with sufficient level of readiness to use the infrastructure. The table with these applications is available at <https://vi-seem.eu/life-sciences/>.

At this point in time the Virtual Research Environment of the project will be mature enough and will take central position in this training. Our survey of the needs of Life Science users determined that most of the applications require advanced training with respect to the infrastructure, while in the domains of tools for Big Data, Data Analysis methods and Life Sciences tools there is great variability. Having in mind the limited time for the training we determined the most important topics to be covered. The access to the infrastructure will emphasize the access to HPC at advanced level. The various topics related to Data - storage, analytics, processing, etc., will be covered in two different tracks - one dedicated to generic data services, tools and methods, and the other dedicated to software, protocols, etc., specific to Life Sciences. Some of the popular Life Science applications will be considered at sufficient depth, as it was requested by the user communities. For example, the GROMACS, NAMD applications will be covered, also showing how accelerators like GPUs or Xeon Phi can be used with them. Generic programming frameworks, techniques and standards, like, for example, MPI and OpenMP, will be covered to an extent that is necessary for the users to understand their purpose and how they can be used optimally while running the applications. It is not necessary that all users should be able to program using such frameworks after the training, but it will be a goal of the training to give them enough information so that they can use the infrastructure in an optimal way. For example, it will be shown how to evaluate application performance and scalability and what tools can be used for that.

Because the planned date for the training is October 2017, we expect that new Life Sciences applications will be accepted and we will have to tailor the content of the training to their needs too.

6.3 National training events

In addition to the discussed regional trainings, a number of trainings will be organized on the national level across different partners in the project.

The timeline of the planned national trainings together with their venue and targeted Scientific Communities is given in Table 7.

Project month	Country code	Training venue	Targeted Scientific Community
M07	MD	Chisinau, IMU	Life science
M11	MK	Skopje, FCSE	Life science /Climate
M13	GE	Tbilisi, TSU	Climate
M20	MD	Chisinau, IMI ASM	Life science /Climate
M23	AM	Tbilisi, TSU	Life Science/Climate
M24	RO	Timisoara, WUT	Cultural heritage
M25	AL	Tirana, UPT	Climate
M26	CY	Nicosia, Cyl	Climate/Digital Culture Heritage
M32	MD	Chisinau, USM	Life science /Climate

Table 7: Venue and target audience for the planned national trainings

Most of the training topics have already been fixed according to the results from the users’ survey, the available infrastructure and services, the profile of the end-users for the involved project partners where the national training events are going to be held and similar factors.

During the first training event for the Life Sciences community in Moldova, the training will be dedicated to the prospects of using the VI-SEEM infrastructure and the DICOM application. On the cross-disciplinary event for both Life Sciences and Climatology in Macedonia, the focus will be set on the HPC infrastructure, simulation and modeling, MD and QM. Next, in Georgia, the training event targeting the Climatology Scientific Community will cover the WRF and WRF CAM models. The second training event in Moldova will be cross-disciplinary targeting the Life Sciences and Climatology Scientific Communities and will provide training on how to access the VI-SEEM national and regional infrastructure. The next event in Armenia has the same target audience, but here the agenda will include training on HPC infrastructure and how to use it for simulation and modeling. A specialized Digital Cultural Heritage national training will be held in Romania, focusing on tools for digital preservation. In Albania, the national training will be aimed for the Climatology Scientific Community and will focus on parallel programming languages. In addition to the planned regional event, in Cyprus there will be another national training event covering topics important for both the Climatology and the Digital Cultural Heritage Scientific Community. The last planned event will be held in Moldova and will provide training for use of Life science (DICOM) and Climate national applications, and perspectives of their development based on VI-SEEM experience.

7 Conclusions

The goal of this deliverable was to analyze the needs and requirements for the VRE-focused training in the region, and prepare the initial training plan for the regional and national training events, both discipline-specific and cross-disciplinary.

All the training events are supported by the training repository containing VI-SEEM official and standardized training materials, and an agenda system for the training event information, as well as calendar.

The results from the user training requirements analysis have demonstrated that a large part of the end-users are seeking introductory materials that will bring the relevant technologies closer to all Scientific Communities. Thus, part of the training should be focused on the access to the infrastructure, possibly also available as a video recording that will be part of the future versions of the training platform. In addition to the general trainings, specialized Scientific Community-oriented training events will provide more focused information on the different tools and packages relevant to the given field.

The training events will facilitate transfer of the necessary technical skills to the target regional user communities and help them in the efficient use of the available VRE resources.

This deliverable also provides the internal VI-SEEM policies for training event organizers, template for reporting, and survey for collecting feedback about the events - which will be used in order to measure and evaluate the impact of the training events.

In order to ensure high-quality training, a detailed training organization procedure was developed where each training event will conclude with analysis of the completed training evaluation survey presented to all training attendees. The results obtained from the training evaluation analysis for each event will be used as input for better organization and preparation that will increase the quality of the future training events.

Appendix A Training requirements survey

1. Mark your need for training regarding the general use of available infrastructure:

Type	Do not require training	Basic training	Intermediate training	Advanced training
Grid				
HPC				
GPU				
Other (please specify):				

2. Please select the type of training in general cloud and big data tools that you would like to receive:
- Not needed
 - Basic general training
 - Intermediate general training
 - Advanced specialized training

3. Mark your need for training for the different offered open source tools for Big Data:

Group	Tool	Do not require training	Basic training	Intermediate training	Advanced training
Big Data Analysis Platforms and Tools	Hadoop				
	MapReduce				
	Storm (Hadoop of real time)				

Group	Tool	Do not require training	Basic training	Intermediate training	Advanced training
Databases/Data warehouses	Cassandra (NoSQL)				
	MongoDB (NoSQL)				
	OrientDB (NoSQL)				
Business Intelligence	SpagoBI				
	Pentaho				
	Jaspersoft				
Data mining	RapidMiner/RapidAnalytics				
	Mahout				
	Orange				
	KEEL				
	Rattle (R based)				
Programming languages	Pig				
	R				
	ECL				
Big Data search	Lucene				
	Solr				
	Other (please specify):				

4. Do you require training in:

	Introductory	Advanced	Expert
MPI			
OpenMP			
CUDA/OpenCL			
Numerical Libraries			
Programming Languages			
Compilers			
Visualization			
Access to infrastructure			
Profiling/Optimization			
Data			
Domain specific			
Molecular Dynamics simulations			
Computer-aided drug design			
Image analysis			
Linux/Unix			
Data mining			
Analysis of next generation sequencing data			
Statistical Analysis			
Databases			

5. Do you require advanced user support?

	Required (Yes/No)
MPI	
OpenMP	
CUDA/OpenCL	
Numerical Libraries	
Programming Languages	
Compilers	
Visualization	
Access to infrastructure	
Profiling/Optimization	
Data	
Linux/Unix	

6. (Life Sciences only) Mark using increasing numbers (1 – highest and 8 - lowest) the need for training in the following data analysis methods:

Capture	
Curation	
Analysis	
Search	
Sharing	
Storage	
Transfer	
Visualization	
Other, please specify	

7. (Life Sciences only) Mark your need for training for the different offered tools:

Tool	Do not require training	Basic training	Intermediate training	Advanced training
ChemBioserver				
PepServer				
NAMD				
GROMACS				
PLOS Text Mining Collection				
BWA				
Picard				
GATK				
Other (please specify):				

8. (Climatology only) Mark your need for training for the different offered climate and weather forecasting models:

Model	Do not require training	Basic training	Intermediate training	Advanced training
WRF				
WRF-Chem				
ECHAM (EMAC)				
RegCM				
MM5				
DREAM				
Other (please specify):				

9. (Climatology only) Mark your need for training for the different offered visualization and GIS software:

Software	Do not require training	Basic training	Intermediate training	Advanced training
GrADS				
ParaView				
FERRET				
ArcGIS				
ENVI				
LAS (Live Access Server)				
Other (please specify):				

10. (Climatology only) Mark your need for training for the different offered tools:

Tool	Do not require training	Basic training	Intermediate training	Advanced training
NCL (NCAR Command Language)				
R				
Python				
IDL				
Other (please specify):				

11. (Digital Cultural Heritage only) Mark using increasing numbers (1 – highest and 7 - lowest) the need for training in the following:

advanced content management systems	
data repositories	
Visualization	
computational intensive workflows and querying	
content-based image retrieval (CBIR)	
Image processing and machine learning algorithms	
GPU based algorithms for image classification	
Other, please specify	

12. (Digital Cultural Heritage only) Mark your need for training for the different offered tools, codes and models:

Tool	Do not require training	Basic training	Intermediate training	Advanced training
Osteoware				
MEDICI				
Algorithms for remote sensing image classification				
Algorithm for aerial image classification				
ImaNote				
Soft Ontology Layer (SOL)				
idPromo				
InViTo				

Tool	Do not require training	Basic training	Intermediate training	Advanced training
3DINV				
AutoGRToolkit version 3.2				
DAR				
Osteoware				
Other (please specify):				

13. Please list all of the above-mentioned models, tools and codes for which you are able and willing to provide training for the other project members.

Appendix B Training organization procedure

Training event organization ToDo list

Status	Item
Plan the event	
<input type="checkbox"/>	Create an account on VI-SEEM Agenda System [3]
<input type="checkbox"/>	Inform training task leader (T2) and WP2 leader for the upcoming event
<input type="checkbox"/>	WP2T2 gave you admin rights to your VI-SEEM training event template
<input type="checkbox"/>	Modify the data within the event to correspond to training event details
<input type="checkbox"/>	Set dates for activation and deactivation of user registration and evaluation forms
<input type="checkbox"/>	Change visibility and access to the training event to public (Protection tab)
<input type="checkbox"/>	Advertise training event via different channels to target audience
<input type="checkbox"/>	Check available training material, prepare additional if necessary
<input type="checkbox"/>	Reserve training slot on the available training infrastructure
<input type="checkbox"/>	Organize trainers and define schedule
<input type="checkbox"/>	Update training timetable details (Agenda System)
<input type="checkbox"/>	Update questions in evaluation form to reflect the training event (Agenda System)
Before the event	
<input type="checkbox"/>	Provide link to training material and user guide on training infrastructure on the training event in the agenda system
<input type="checkbox"/>	Prepare venue (classrooms with presentation equipment, labs and access to infrastructure, refreshments, printed material necessary)
<input type="checkbox"/>	Send reminder to registered participants
During the event	
<input type="checkbox"/>	Take photos of the event
<input type="checkbox"/>	Send reminder to trainees about the evaluation survey (Agenda System)
After the event	
<input type="checkbox"/>	Fill out the training summary report template (available in Materials->Summary) *use evaluation form statistics from Agenda System
<input type="checkbox"/>	Make the report publically available on the VI-SEEM agenda system within the training event
<input type="checkbox"/>	Send the training summary report and any additional comments to WP2 leader and WP2T2 leader

Appendix C Training evaluation survey

<Course Name>: Event Evaluation

Please fill in this form to provide the training team the much needed feedback for the course:

<Course Name>

Location: <Course Location>

Date: <Course Dates>

Please note that all data is collected anonymously and there is no link to your identity, organisation or location.

Gender: Male Female

Rating	Poor	Fair	Average	Good	Very Good	Excellent	Comments
Goal 1: <Description of Goal 1>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Goal 2: <Description of Goal 2>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Overall Evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lab Exercises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Advertising & Registration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Additional comments	
Where did you hear about this training?	
What did you like most about this event?	
What did you like least about this event?	
Which of the training topics did you find the most useful?	
Which of the training topics did you find the least useful?	
Is there anything else you would like the event to have covered?	
Further Comments	

Appendix D Training event summary report

Title: <Course Name>

Date: <Course Dates>

Short description: <Course Description>

Language(s) of presentations: <Course Language>

Lead organiser (name and email): <Organiser name, email>

Location: <Institute, City, Country>

URL: <URL to VI-SEEM Indico page>

Local URL: <Optional>

Length of event: <Length of event measured in days>

Participants

Organisation, Country	Number of Participants

Total number of participants: <Number of participants>

Total number of countries: <Number of countries>

Male: <percent>% **Female:** <percent>% **Didn't answer:** <percent>%

Feedback Analysis

Course Component	Average grade (1: poor - 6: excellent)	Standard Deviation (N=)
Goal 1: <Description of Goal 1>		
Goal 2: <Description of Goal 2>		
...		
Overall evaluation		
Presentations		
Lab exercises		
Advertisement & Registration		
Facilities		