

VI-SEEM

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



Deliverable D2.7

Second Dissemination, training and marketing report

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Status –Version: Final

Date: September 18th, 2018

Distribution - Type: Public

Abstract: Deliverable D2.7 – “2nd Dissemination, training and marketing report” – This deliverable presents the dissemination, training and marketing activities and results during the second half of the project, M19-M36.

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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
June 6 th , 2018	a	Aneta Karaivanova	Initial version of ToC.
June 25 th , 2018	b	Aneta Karaivanova	Final version of ToC and initial draft.
July 20 th 2018	c	All partners	Contributions from all partners collected
July 31 st 2018	d	Aneta Karaivanova	Input compiled and summarized. First draft circulated.
August 3 rd 2018	e	T. Gurov, A. Misev, A. Athenodorou, S. Filiposka, A.Karavanova	Contributions, updated statistics. Pre-final version circulated.
September 13 th , 2018	e	A. Athenodorou, D. Kotsokali	Description of updated VRE portal and September events.
September 18 th 2018	f	L. Milosavljevic, O. Prnjat, T. Gurov, A. Karaivanova	Quality check, final version.

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References

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- [4] Deliverable D2.3 "Dissemination and marketing plan"
- [5] Deliverable D2.4 "Training plan"
- [6] Deliverable D2.5 "Promotional package with updates"
- [7] Deliverable D2.6 "1st Dissemination, training and marketing report"
- [8] VI-SEEM official website, <https://vi-seem.eu/>
- [9] VI-SEEM VRE portal, <https://vre.vi-seem.eu/>
- [10] VI-SEEM training portal, <https://training.vi-seem.eu/>
- [11] VI-SEEM Wiki, https://wiki.vi-seem.eu/index.php/Main_Page
- [12] VI-SEEM agenda system, <https://events.hpc.grnet.gr/>

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Glossary

ARIADNE	Advanced Research Infrastructure for Archaeological Dataset Networking in Europe
BioExcel	Centre of Excellence for Computational Biomolecular Research
CL	Climate
CLARIN	Common Language Resources and Technology Infrastructure
CPU	Central Processing Unit
CSIT	Computer Science and Information Technologies
CSOs	Chief Security Officers
DARIAH	Digital Research Infrastructure for the Arts and Humanities
DCH	Digital Cultural Heritage
EGI-Engage	Engaging the Research Community towards an Open Science Commons
EC	European Commission
ERA	European Research Area
EOSC	European Open Science Cloud
E-RIHS	European Research Infrastructure for Heritage Science
ESIF	European Structural and Investment Funds (
EU	European Union
EUDAT	EUropean DATa infrastructure
FCSE	Faculty of Computer Science and Engineering
HPC	High Performance Computing
GPU	Graphics Processing Unit
GRAVITATE	Geometric Reconstruction And noVel semantic reunificaTion of culturAl heriTage objEcts
InnoHPC	High-performance Computing for Effective Innovation in the Danube Region
IT	Information Technology
LAMMPS	Large-scale Atomic/Molecular Massively Parallel Simulator
LS	Life Science
LSSC	Large-Scale Scientific Computations
MD	Molecular Dynamics
NAMD	Nanoscale Molecular Dynamics
M-NAV	Macedonian navigation

OpenAIRE	Open Access Infrastructure for Research in Europe
RIs	Research Infrastructures
PRACE	Partnership for Advanced Computing in Europe
SEE	South East European
SEEM	South East Europe and Eastern Mediterranean
SMEs	Small and Medium-sized Enterprises
SYNASC	Symposium on Symbolic and Numeric Algorithms for Scientific Computing
VI-SEEM	VRE for regional Interdisciplinary communities in Southeast and the Eastern Mediterranean
VRE	Virtual Research Environment

Executive summary

What is the focus of this Deliverable?

Deliverable D2.7 "2nd dissemination, training and marketing report" is a M19-M36 report of the VI-SEEM dissemination, training and marketing activities, results and outcomes. D2.7 also presents innovation activities. The focus of this deliverable is to provide complete overview of the results achieved through training and dissemination activities complemented by improvements outlined in the marketing plan. D2.7 shows statistics about the dissemination and training events that are organized by VI-SEEM as well as the events where the project was presented. It lists the scientific publications supported by VI-SEEM, gives an overview of the dissemination and use material, media presence, training material, available online tools and documents. It also summarizes the VI-SEEM marketing activities towards attracting new user communities and addressing different groups of target audience such as general public, students and academic staff, industry and SMEs, and stakeholders and policy makers.

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

This is the final report on project activities in this work package.

What are the deliverable contents?

The contents of this deliverable are:

- Project dissemination and use material (brochure, poster, presentation, scientific papers and media presence), VI-SEEM official website, VRE portal and Training portal.
- Statistics of regional and national-level dissemination and training events organized by the consortium as well as the overview of the related events with VI-SEEM presence.
- VI-SEEM marketing activities summary, target audiences, innovation strategy, and report on the actions taken towards the fulfilment of the plan.

Conclusions and recommendations

The presented report is based on the adaptation of the initial dissemination, training and marketing plan, focusing the activities on target stakeholders and users, and also following reviewers' recommendation to strengthen the activities.

The project outreach has diversified in terms of audience, reaching out the school students, universities, wide research community, SMEs and industry, and the highest level of policy making environment.

The number of training and dissemination events, as well as the number of participants, has been increased, with the result of over-achieving the planned targets. Open calls were widely advertised and specific SME call was released. Media activities and involvement in the popular scientific events were intensified in order to reach the widest audience possible (pupils, students, general public, academia, etc.). VI-SEEM partners have established contacts with local industry and SMEs, presented the VI-SEEM project platform and activities, and established collaborations. The established contacts will continue to be used for promoting VRE platform and its use for scientific research and technology advances.

1 Introduction

Deliverable D2.7 "2nd Dissemination, training and marketing report" is the last deliverable in the framework of the VI-SEEM activity WP2 "Communication, Marketing, Training and Innovation". D2.7 reports the WP2 work done and results achieved during the second project period (M19-M36). This activity provided platform for networking, collaboration and training for the users from 3 target communities (DCH, LS and CL), dealt with the project and its VRE services, dissemination and marketing functions, organised and delivered dissemination and training events, and supported innovation management functions. The work of the WP2 started from the first day of project lifetime and some of the accomplishments are already documented in the following deliverables: D2.1 "Internal and external communication platform, docs repository and mailing lists" [2], D2.2 "Promotional package" [3], D2.3 "Dissemination and marketing plan" [4], D2.4 "Training plan" [5], D2.5 "Promotional package with updates" [6] and D2.6 "1st Dissemination, training and marketing report" [7].

The overall ambition of this activity was to stimulate the VRE services take-up and ease of end-user access to the services through broad range of training, dissemination, marketing, and outreach communication activities. The dissemination aimed to go beyond researchers and scientists, including the general public, government officials, academic senior staff, industries/SMEs, and other key players. Our aim was 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. We have developed and implemented a comprehensive VRE-specific training program, aiming to enable end users for seamless and efficient use the underlying data, resources and services.

The deliverable D2.7 "2nd Dissemination, training and marketing report" represents the report VI-SEEM dissemination, training, marketing and innovation activities during the second half of the VI-SEEM project. The document is organized as follows: after a short introduction, summary of dissemination activities which includes overview of the dissemination and use material, the project web presence and media coverage, short description of main dissemination events (organized by the project, and project presentation at external events external), and overview of scientific papers, is presented. The next chapter presents training activities with their planning and implementation, training material and organization, and short descriptions of regional, national and related training events. Chapter 4 presents results of implementation of the innovation strategy developed by the project and describes the results. Chapter 5 contains overview of the marketing activities complimentary to the dissemination activities, and reports on the implementation. The document ends with conclusions which present the quality metrics implementation. The document is supported by 5 Annexes containing the list of external events, list of scientific papers, list of scientific presentations, program of the regional conference and list of success stories.

2 VI-SEEM dissemination activities during the second half of the project: summary

2.1 Dissemination and use material

The VI-SEEM brochures, posters and presentations constitute an essential aspect of the project's identity and its strategic communication and marketing plan. The material is built on a common and consistent brand and specific graphic style, which reflects the project corporate design.

The project promotional package together with additional dissemination material such as press releases, newsletters and power point presentations has been significant for optimizing the project visibility.

The promotional package has been distributed to the VI-SEEM partners for further dissemination through their local channels.

During the reported period a new brochure and new posters have been prepared, the project presentation is updated and 3 newsletters are issued.

Logo

For completeness we present the logo, which is the main graphic identity element and it is used in all elements of the project, from project web site to printed material.



Figure 1: Project Logo

Brochures

Two brochures have been produced since the beginning of the project. The first edition of the project brochure (developed in the first project period) provides a holistic view of VI-SEEM, describing the VI-SEEM scope, objectives and impact on the regional Scientific Communities.

The second brochure is developed in the reported project period. It complements the first brochure, reflects the project existing conceptual design and builds on it further. It presents

the added value and precise access modalities and conditions to the VRE services and (training) resources, including call opportunities. Based on the "explore-exploit-excel" motto, it explains what VI-SEEM is, what it offers to the three scientific communities in terms of infrastructures and applications, and describes the supported activities in the scientific fields of Life Sciences, Climate Science and Digital Cultural Heritage. It also provides information on how to get access to the Virtual Research Environment and the VI-SEEM user support and the training offerings.

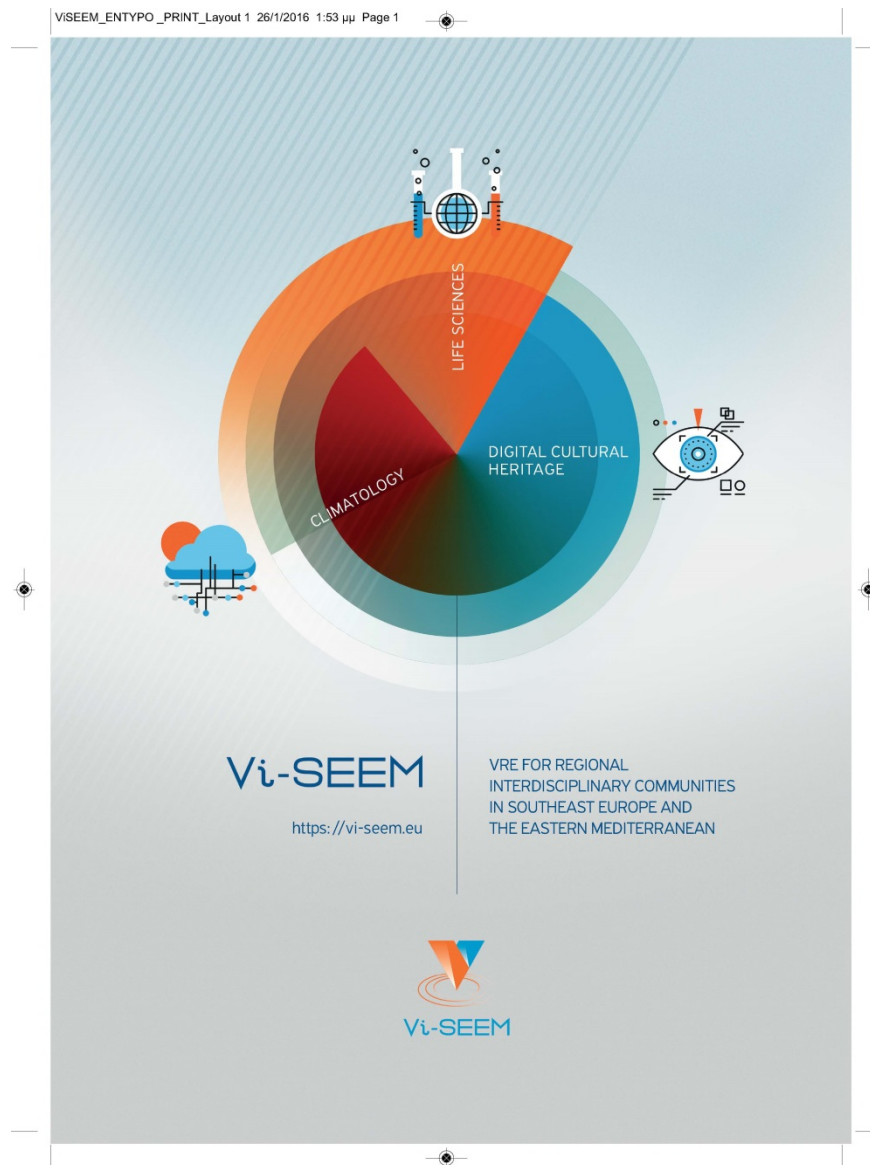


Figure 2: VI-SEEM brochure cover page, 1st edition

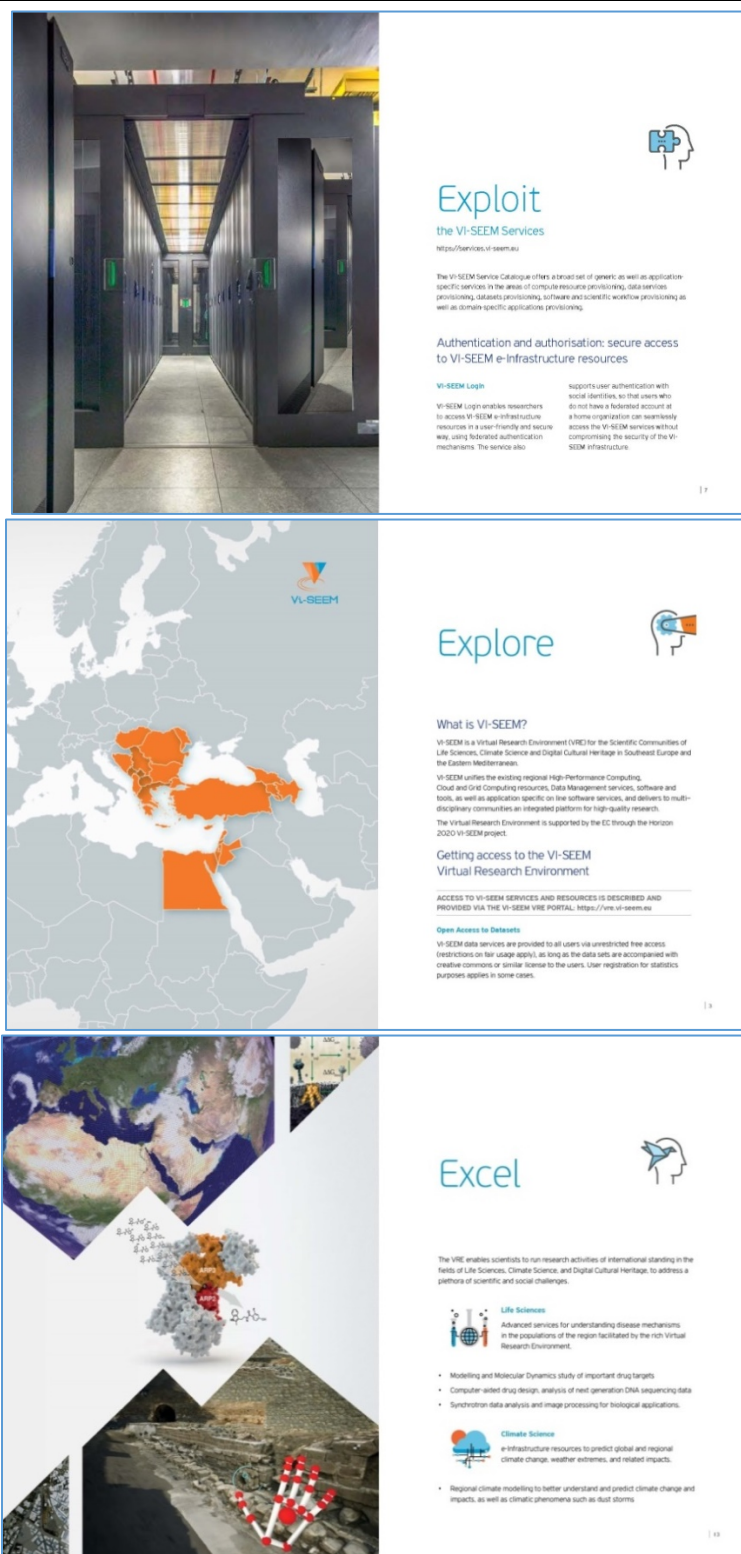


Figure 3: VI-SEEM brochure 2nd edition, layout of the basic structure based on the motto

Posters

The VI-SEEM posters are used to draw attention and to enhance the project brand identity. The posters are displayed on public view at events organized or attended by VI-SEEM members. The first edition of the project poster reflects the VI-SEEM identity. The updated project poster (second reporting period) provides succinct and catchy information, emphasizing the key points of the Virtual Research Environment offerings and scientific communities' aspects.

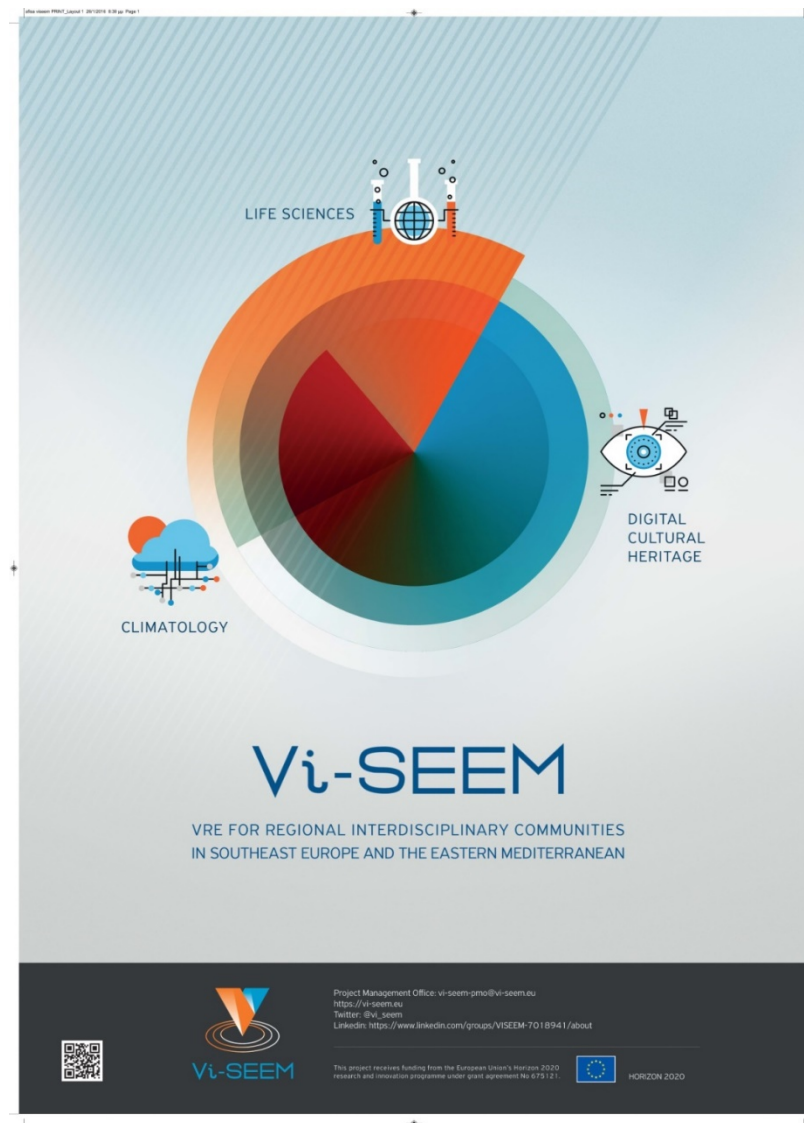


Figure 4: First VI-SEEM poster



Figure 5: Second VI-SEEM poster

In the beginning of 2018 two new dissemination posters (Figure 6) were prepared and used for 2018 events (the VI-SEEM conference and the international events during the Bulgarian presidency): they present selected success stories and regional infrastructure.

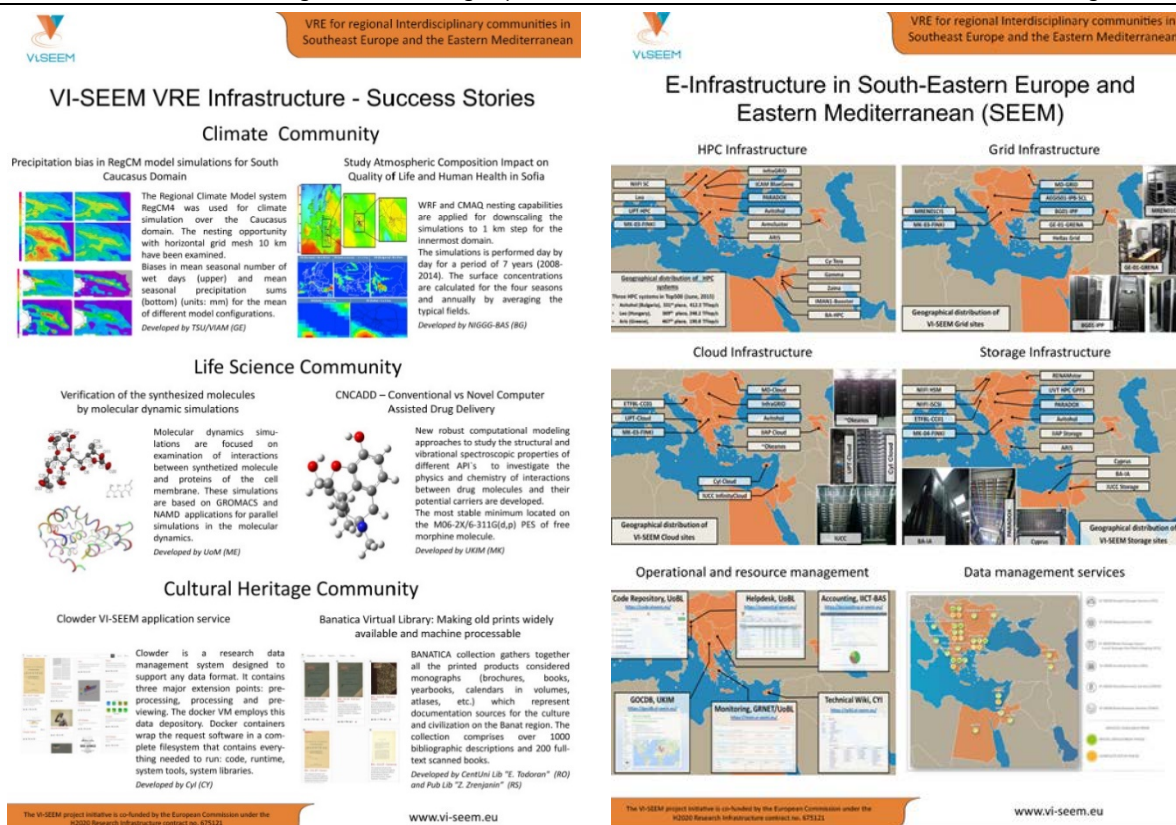


Figure 6: VI-SEEM posters: Success stories and SEEM infrastructure

VI-SEEM presentation

The project core presentation provides information about the VI-SEEM VRE status, services and access modalities. It also describes project objectives and vision, structure and activities and presents the project service catalogue.

Newsletters

Five newsletters have been released, three of them during the reported period. The newsletters inform about major project achievements, new services, calls for access to the VI-SEEM resources, scientific applications from the three disciplines, and other related news.

The newsletters are archived on the VI-SEEM website: <https://vi-seem.eu/newsletters>

2.2 VI-SEEM web presence

In this section, we present the web presence of project main web page (vi-seem.eu), training portal (training.viseem.eu) and VRE portal (vre.vi-seem.eu). The training portal and VRE portal are redesigned following the review recommendations and users remarks. The

main project web page is also significantly improved (graphically) and new sections are added. Bellow we describe the current versions.

2.2.1 Main project website

VI-SEEM website constitutes a core, dynamic information source, providing input on the project status, and highlights of interest to its target groups. Together with the project social media accounts (Twitter and LinkedIn) the website provides significant visibility to VI-SEEM activities, offerings and added value for the scientific excellence in the region. It is an integral part of the VI-SEEM communication infrastructure and acts as a one-stop-source as it offers links to:

- the Virtual Research Environment
- the Service Catalogue
- the training portal and material

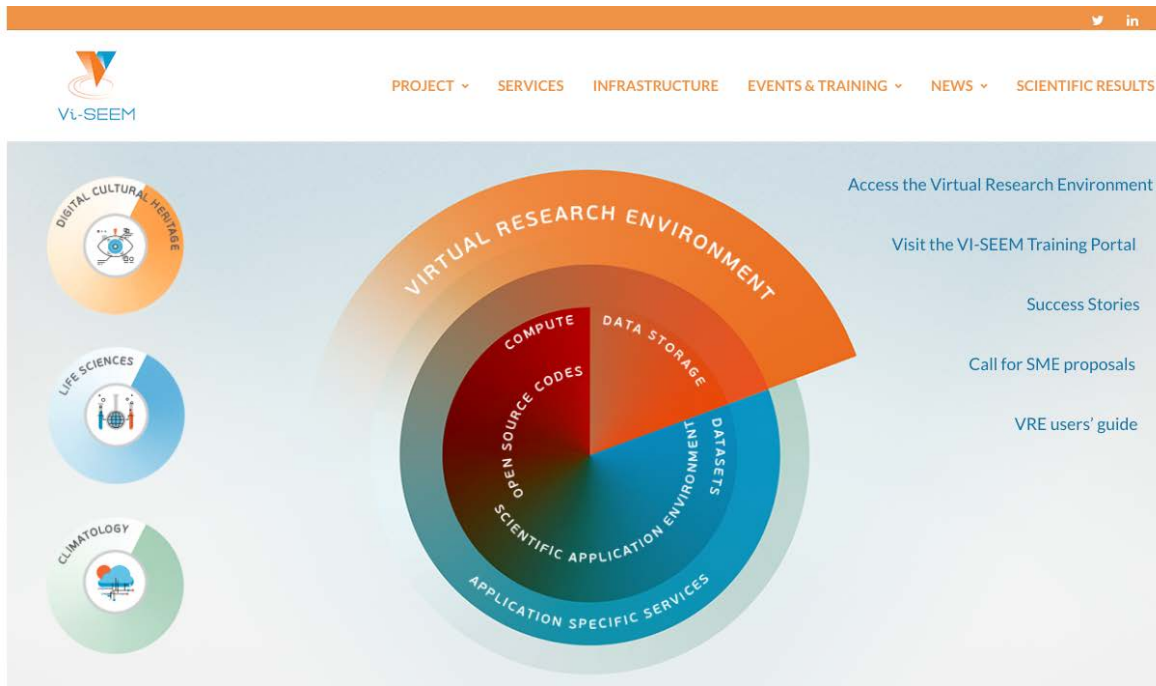
The website structure is such that any user can easily access content and resources.

The homepage provides a menu of the main categories, links to the VI-SEEM Social media and shortcuts to:

- the VI-SEEM scientific communities
- the Virtual Research Environment
- the VI-SEEM Training Portal
- the VI-SEEM Success Stories
- the VRE users' guide

The homepage also features the latest news and project tweets for maximizing the visibility of the project messages to the users.

The following is a screenshot of the website homepage:



LATEST NEWS

- > Regional Clim Research on fruit-splitting in Citrus
July 27, 2018
- > WebplatforMD – Integrated Web-based Interactive Data Platform for Molecular Dynamics Simulations
July 20, 2018
- > VirMuF – Virtual Museum Framework for exhibiting digitized collections
July 19, 2018
- > VI-SEEM plenary talk at the 23 Int. Conference on Computing in High Energy and Nuclear Physics (CHEP 2018), 9 July 2018, Sofia, Bulgaria
July 10, 2018
- > Empowering Pilot-abstractions of SESAME Scientific Applications over Data-intensive Clouds and Cyber-infrastructure
July 6, 2018

VI-SEEM TWITTER

Tweets by @vi_seem

VI-SEEM Retweeted

Eurolab4HPC
@eurolab4hpc

Interested in #funding

1. For Business Prototyping Projects (#BPP) in #HPC?
2. For Short Term Collaboration Exchanges in #HPC?
3. For bilateral Academia-Industry #TechTransfer Projects (TTP) in #HPC?

eurolab4hpc.eu/calls/. Apply by 30 September!

Eurolab4HPC opportunities
#funding #business #bigdata #HPC #Projects #Proposals #callsfunding

Embed

View on Twitter

SUCCESS STORIES

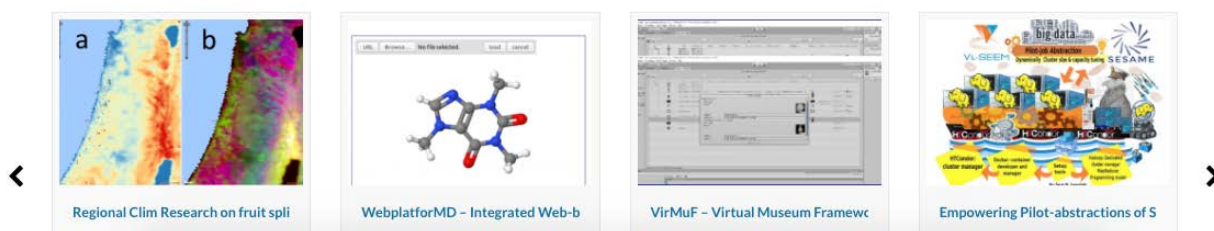


Figure 7: VI-SEEM website

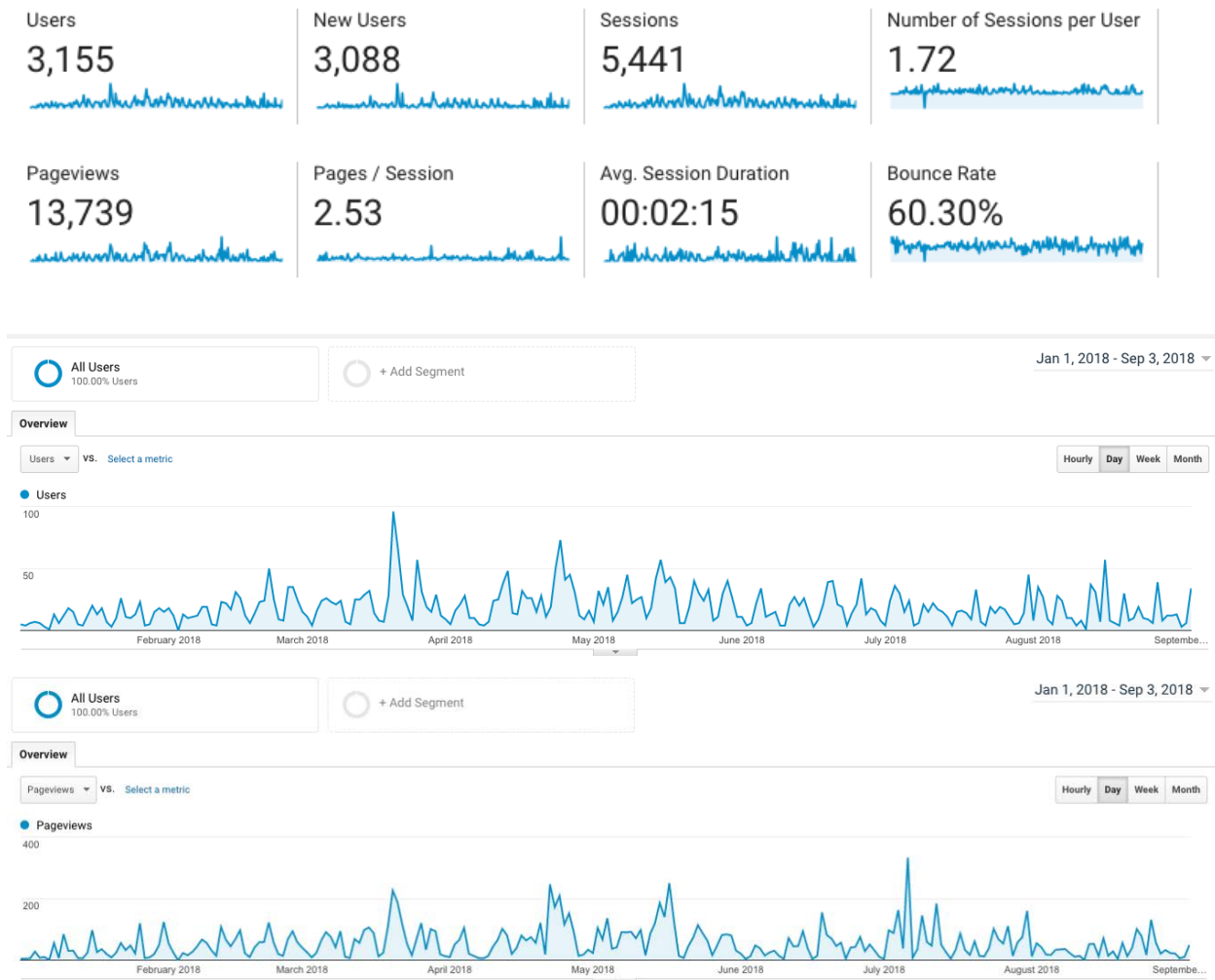


Figure 8: VI-SEEM website analytics for the period of January 2018 to September 2018

2.2.2 VRE portal

The VI-SEEM VRE portal can be accessed through the link <http://vre.vi-seem.eu/>. The Virtual Research Environment Portal is the portal which connects the user to the VI-SEEM services. It has a user-friendly structure and can easily direct the user according to the desired result. The portal connects the unified infrastructure, the generic services and hosts the user-tailored front end interface. This integrated platform enables easy communication and data sharing between the various user groups. The navigation of the user can be done through the header of the front page or the layout.

The header of the VRE-portal provides the following tabs.



Figure 9: The appearance of the header from the VRE portal

1. [Scientific Application Environment](#) which provides the list of Service Enablers also contains links to the climate, cultural heritage, and life science Applications and Libraries, Virtual Machine (VM) images and Software developed use cases. Furthermore it provides guidelines on HOW TO CONTRIBUTE to Scientific Application Environment.
2. [Workflows, Software Tools](#) which provides several modules such as documents containing best practice procedures and workflows for the production of results relevant to the application categories identified in the SEEM region. Here you can find links to pages containing lists with short description and access/documentation details for the scientific workflows provided by the VI-SEEM platform, and list of the codes that can currently be downloaded from the code repository arranged by scientific community. Furthermore it provides guidelines on HOW TO CONTRIBUTE to Workflows and Software tools.
3. [Regional Community Datasets](#) which provides scientific data, publications and simplified data formats for immediate re-use organized into Climate Scientific Community Datasets, Digital Cultural Heritage Scientific Community Datasets, and Life Sciences Scientific Community Datasets followed with instructions HOW TO CONTRIBUTE to datasets.
4. [Application-level Services](#) which provides links to the associated application-level services of the three scientific communities as well as instructions on HOW TO CONTRIBUTE TO THE APPLICATION LEVELS SERVICES.

The layout of the VRE-portal has been designed so that could provide the user the needed information and material in an easy way. This is manifested through the organization of the page in the following sections:

1. **User Zone** which provides access according to the user orientation/experience/needs.
2. **VI-SEEM support the following Scientific Communities** which is organized in disciplines.

3. **Cross Disciplinary Fields** exploiting the cross-disciplinary character of the provided material.
4. **VI-SEEM Sites** providing access to the main VI-SEEM websites.
5. **European Infrastructure Projects.**

In the following paragraph we present the associated sections:

User Zone



Figure 10: The User Zone as this appears in the VRE portal

This section provides tabs for linking users to the corresponding places:

- **Researchers:** By clicking on the text or the icon appearing in the square dedicated to Researchers the user is directed to a webpage which is graphically organized in the next seven sections:
 - Apply for Computational Resources
 - Access the Source Code Repository
 - Access to the supported applications & libraries
 - Access the Scientific Workflows
 - Access the Datasets
 - Access the Application-level Services
 - Access the VI-SEEM training portal

The layout of the webpage dedicated to researchers is presented in *Figure 11*.

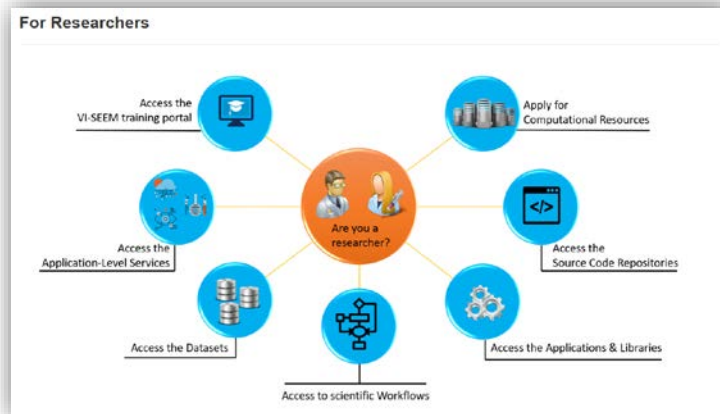


Figure 11: The VRE section dedicated to researchers

- **Students:** By clicking on the text or the icon appearing in the square dedicated to students the user is linked to a webpage which is graphically organized in the next six sections:
 - Access the VI-SEEM Training Portal
 - Access the Events Calendar
 - Access the Source Code Repository
 - Access to the supported applications & libraries
 - Access the Scientific Workflows
 - Access the Datasets

The layout of the webpage dedicated to students is presented in *Figure 12*.

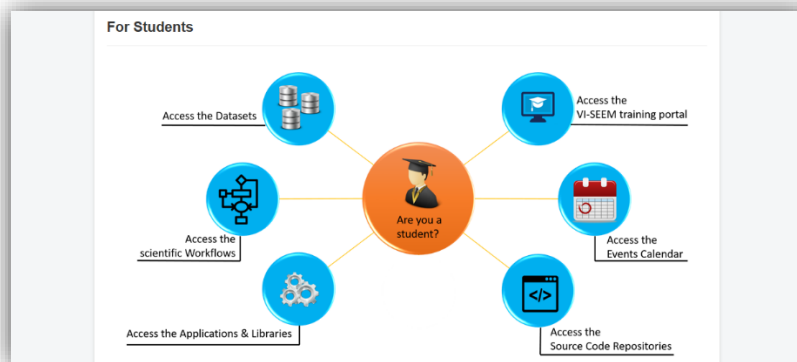


Figure 12: The VRE section dedicated to students

- **SMEs:** By clicking on the text or the icon appearing in the square dedicated to SMEs the user is linked to a webpage which is graphically organized in the next three options:
 - Apply for Computational Resources
 - Access the Datasets
 - Access the Use Cases

The layout of the webpage dedicated to SMEs is presented in *Figure 13*.

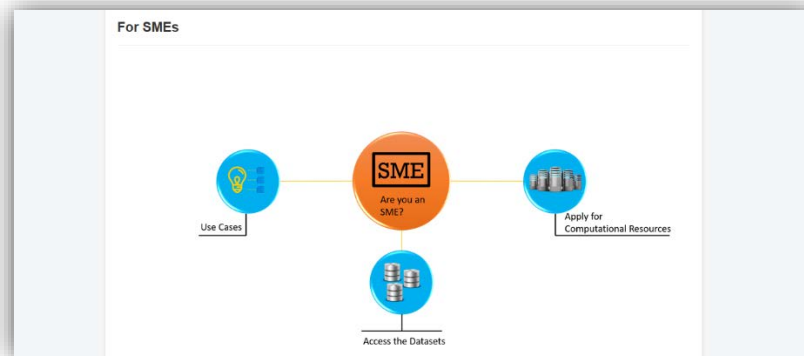


Figure 13: The VRE section dedicated to SMEs

- **Regional Resources Available:** This section provides access to information related to the available:
 - VI-SEEM Compute Resources
 - VI-SEEM Data Resources
- **VI-SEEM Service Catalogue & Portfolio:** This section provides access to the Service Catalogue & Portfolio.
- **Use Cases:** This section directs the reader to use cases developed throughout the VI-SEEM Integration phases as well as the Open Calls. The two links take the visitor to:
 - Explore VI-SEEM Datasets
 - Developed Use Cases

VI-SEEM VI Support the following scientific communities

This section of the VRE-portal is organized according to the Scientific Discipline of the visitor. Namely, it is configured in three silos one for each community (Climate, Life Sciences, Digital Cultural Heritage) each one containing links on related material on the following:

- Application-Level Services
- Datasets
- Codes
- Workflows
- Optimized Applications and Libraries

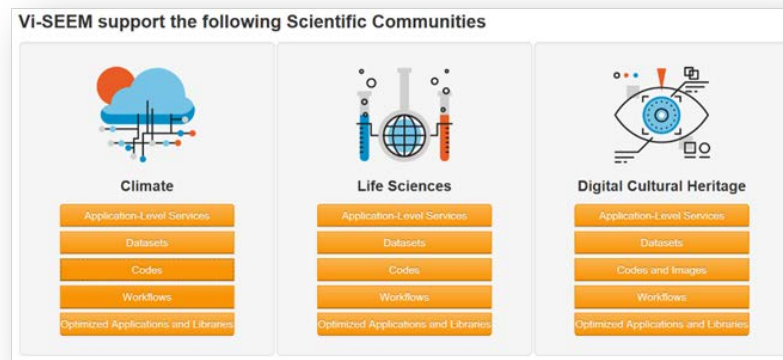


Figure 14: The “VI-SEEM support the following scientific communities section”

Cross-Disciplinary Fields

This section reflects to the Cross-Disciplinary character of VI-SEEM. Thus, instead of the Scientific Discipline (Silo-) orientation of an application or a datasets etc. this section provides a horizontal categorization according to the type of material which can be used in more than one discipline. The structure of this section as this is illustrated in the next picture:

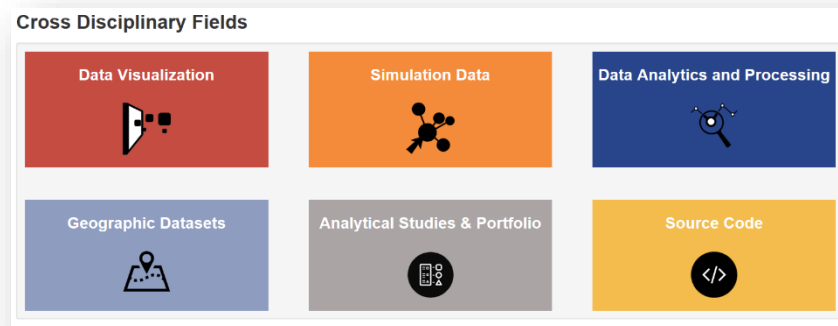


Figure 15: The Cross Disciplinary Section of the VRE portal

By clicking on one of the following 5 subsections:

- Data Visualization
- Simulation Data
- Data Analytics and Processing
- Analytical Studies & Portfolio
- Source Code

the user is directed in a webpage which is graphically organized by the following Venn diagram.

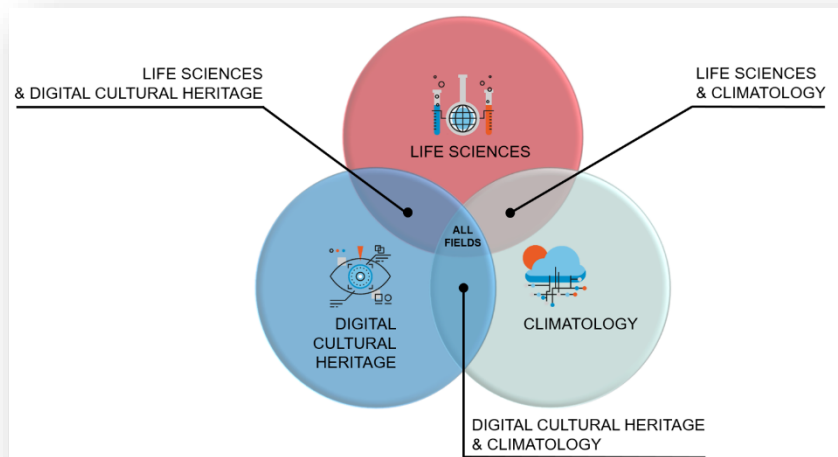


Figure 16: The Venn diagram that directs the visitors of the cross-disciplinary entries of the VRE-portal

By clicking on one of the discipline-overlapping areas the user is directed to the right section of the webpage.

By clicking on the subsection

➤ **Geographic Datasets**

The user is directed a webpage which is graphically organized by the SEEM map and by clicking on a VI-SEEM Partner country the user is directed to a list with projects associated with Geographic Datasets of the given country. Such projects may involve Georeferencing, Remote Sensing, etc.

VI-SEEM Sites

This section provides links to the VI-SEEM **website**, to the VI-SEEM **Training Portal**, to the VI-SEEM **Code Repository** as well as to the VI-SEEM **Wiki**.

European Infrastructure Projects

This section provides links to other Infrastructure projects which might be of the interest of the user. This section lists projects such as **PRACE**, **EGI**, **EUDAT**, **GEANT** and **OpenAIRE** as well as projects with a DCH orientation such as **ARIADNE**, **CLARIN**, **DARIAH**, **E-RIHS** and **GRAVITATE**.



Figure 17: The Section of the VRE portal dedicated to the other Infrastructure projects

Finally the VRE-Portal provides a link to the User's guide for the VRE-portal and optionally asks the user to provide feedback.

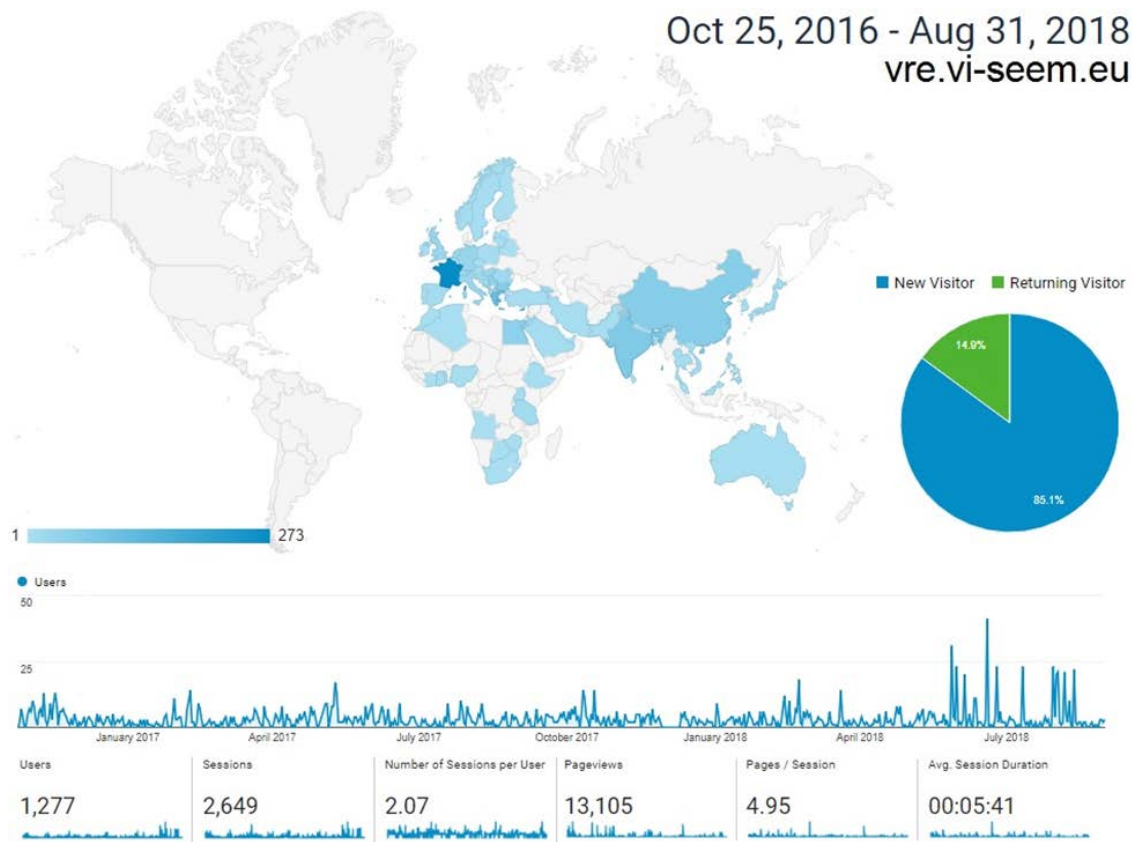


Figure 18: VI-SEEM VRE portal analytics for the period of October 2016 to August 2018

2.2.3 Training portal

The VI-SEEM training portal can be accessed through the link <http://training.vi-seem.eu/>. The purpose of this portal is to collect and curate training material for the VI-SEEM services. Through the use of the training portal users have access to information for the available e-infrastructure services (HPC, Grid, Cloud and Data) as well as domain specific material for using the tools and data provided. The VI-SEEM training portal is the main source of the training material for the VI-SEEM users and it offers a number of important features which make the portal user friendly. The training-portal has an enhanced user oriented character, which provides easy access to researchers, students and users in general.

The front page of the training portal consists of a header which provides access to the following training Material:

- Domain Specific Software and Tools
- Data and Visualization
- Common Computing Resources
- Event Related Training Material

In addition the header of the training portal provides a search engine.

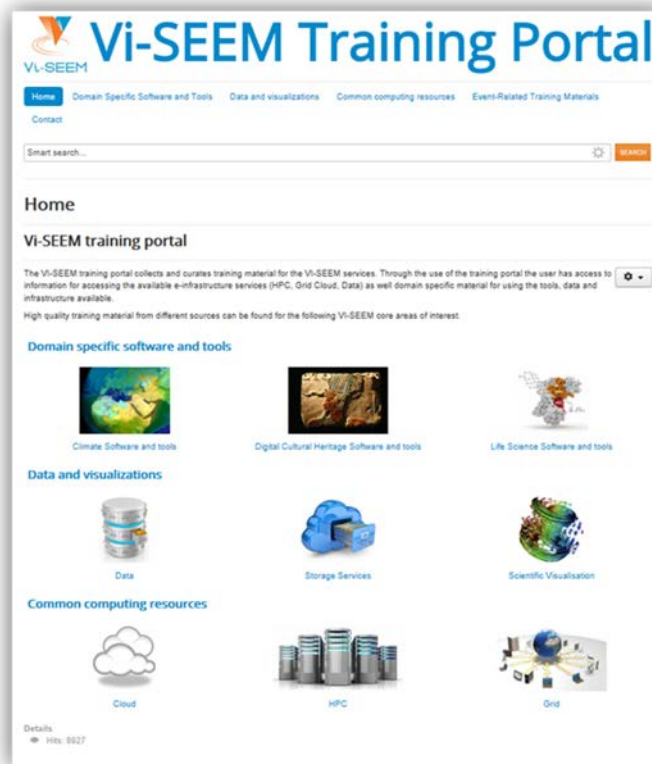


Figure 19: The front page of the Training Portal

The front page of the training portal, shown in Figure 15, has a high-level organization structured in three main categories:

- **Domain Specific Software and Tools** providing access to training material for
 - Climate Software and Tools
 - Digital Cultural Heritage Software and tools
 - Life Science Software and Tools
- **Data and Visualization** providing access to training material for:
 - Data
 - Storage Services
 - Visualization
- **Common Computing Resources** providing access to training material for
 - Cloud
 - High Performance Computers
 - Grid

Therefore, the training portal is organized in nine sections each one described by a distinct icon. By clicking on the icon the user is directed to the associated training material. In the next subsections we provide a description on the structure of each one of the nine sections.

Climate Software and Tools

From this webpage the user can access all the training material which is related to the VI-SEEM Climate applications as well as training material which is related to general software applications, modules and data structures used by the Climate Scientific Community. The structure of the webpage follows the needs of the Climate researchers within the VI-SEEM Project. Hence, the layout of the webpage is organized in five sections (tabs):

- Live Access Server
- VI-SEEM Applications
- Visualization
- Software and tools
- General Training Material

The first tab provides access to the training material on the Live Access Server. The second tab provides access to training material on the Climate applications which have been integrated in the VRE during the three integration phases. The associated training material is organized in three sections. These sections are chosen to reflect the Climate Research areas supported by VI-SEEM:

- Regional Climate Modelling

- Air Quality
- Weather Forecast

An important tool which enables Climate Scientists demonstrating their results effectively is Visualization applications for climate. Therefore, the third tab is dedicated on Visualization. The next tab focusses in Software and tools. Finally, more general training material is provided in the last tab.

Digital Cultural Heritage Software and Tools

From this webpage a user interested in VI-SEEM Digital Cultural Heritage applications can find the corresponding training material. Since the Digital Cultural Heritage community has a strong application-driven character, the webpage is organized in the following seven tabs named after the particular application and action:

- Clowder
- VI-SEEM applications
- Content Management Systems
- Metadata
- Digitization
- Visualization
- General Training Material

The first tab provides access to training material on the Clowder.

Subsequently VI-SEEM provides access to the training material related to the VI-SEEM applications developed in the three integration phases. The corresponding training material is organized in the following three sections:

- Digital Libraries
- Machine Learning for Digital Cultural Heritage
- Online Visualization Tools

The Remaining five tabs provide access to training material related to Content Management Systems, Metadata, Digitization, Visualization and General Training Material.

Life Science Software and Tools

Here a user can find all the training material related to the Life Sciences applications supported by VI-SEEM.. It is organized in four tabs named after the corresponding research area:

Molecular Dynamics Simulations

- Molecular Dynamics Simulations
- Computer Aided Drug Design

- Next Generation Sequencing Data Analysis
- Medical Image Processing

Each one of these tabs is subsequently organized in three distinct sections:

- General Training Material: This involves training material related to the application modules used in the particular research area.
- VI-SEEM applications: This includes training material related to the developed VI-SEEM Life applications.
- Application Level Services: This consists of the material, mostly tutorials, on how a user can use the particular Application-Level Service. For instance there the user can find tutorials and presentations on the usage of ChemBioServer, AFMM, Nano-Crystal, Subtract and DICOM Network.

Data

Data related training material can be accessed in this section. It is organized in three tabs:

- General Training Material
- Climate
- Digital Cultural Heritage

Storage Service

Training Material related to Storage Services is available in this section. We provide training material dedicated to the VI-SEEM Data Repository as well as to VI-SEEM Simple Storage Service.

Scientific Visualisation

This page provides material for training purposes on Scientific Visualization. This page is organized in three sections-tabs. This structure is in accordance with the cross-disciplinary character of VI-SEEM, thus we provide General Training Material which can be used by all three Scientific Communities. In addition we include Visualization Topics focusing on the scientific communities of Climate and Cultural Heritage. Thus, the tabs appearing in the webpage are the following:

- General Training Material
- Climate
- Digital Cultural Heritage

Cloud

Training Material focusing on Cloud computing can be obtained from this webpage. The page is self-contained and is not organized in tabs.

HPC

Training material on High Performance Computers (HPCs) can be accessed through this page. This webpage provides the user with four options manifested by four distinct buttons:

- Practical HPC
- Development
- Improvement
- Applications

"Practical HPC" provides all the documentation and training needed to access and run a supercomputer. This part of HPC training consists of four different sections/tabs:

- Super Computer Basics
- Scripting
- Version Control
- Parallel Tools Platform

"Development" provides all the information one needs to know in order to develop an application capable to run on computers making use of multi-core architectures. The training material on Development is provided in six tabs:

- Programming
- Python
- OpenMP
- MPI
- GPU Programming
- General Training Material

"Improvement" provides documentation on topics which enable the user to analyze the performance of codes as well as to improve the codes and debug them. Optimizing a code running on HPCs is an important task which reduces the execution time and makes the runs less expensive in terms of power consumption. This part of the HPCs' training material splits in two tabs:

- Performance Analysis
- Code Improvement and Debugging

Finally "Applications" provide a number of cross-disciplinary documentations focusing on particular applications which make use of HPCs. Such applications are Synchrotron software and imaging software running on multicore architectures.

Grid

Training material focusing on Grid computing can be accessed in this section. The page provides sliders with links to training material on several aspects of Grid computing.

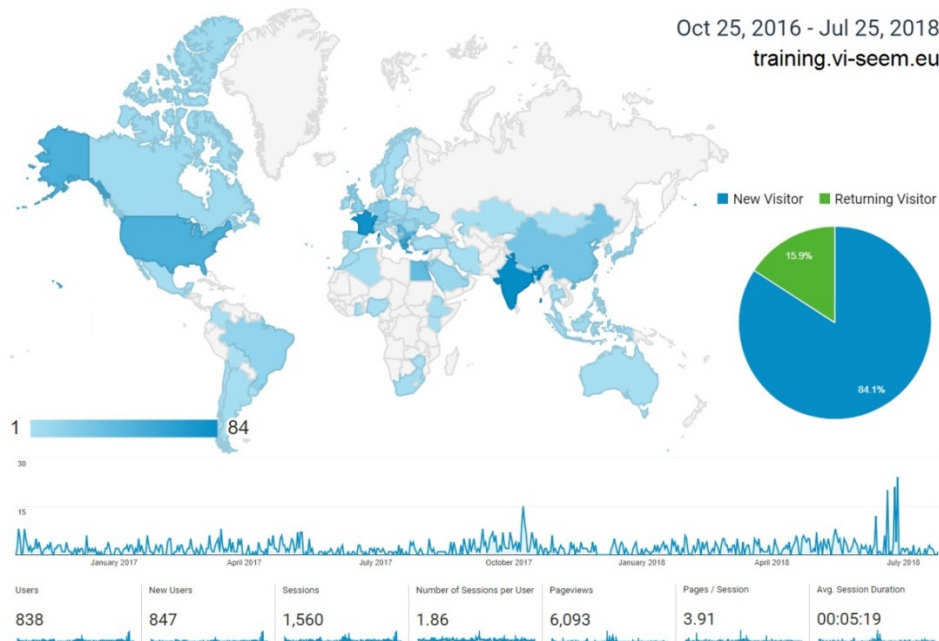


Figure 20: Training portal analytics for the period of October 2016 to July 2018

2.3 VI-SEEM in media

TV, Radio, newspapers, news blogs, magazines

- (IICT) Interview with prof. Margenov (Director of IICT), "Малката изчислителна армия на България", national newspaper Capital (Bulgaria), 24.06.2018, [link](#).
- (GRNET) Interview with Ognjen Prnjat: "VI-SEEM virtual research environment emerges as a mini-EOSC for Southeast European and Eastern Mediterranean scientists", e-IRG News Blog, May 2018, [link](#).
- (IICT) Information about the VI-SEEM conference on the Ministry of Education and Science News section: "ПРОФ. ИВАН ДИМОВ: ЕВРОПЕЙСКОТО СЪТРУДНИЧЕСТВО В ОБЛАСТТА НА ВИСОКОКАЧЕСТВЕНИТЕ ИЗЧИСЛЕНИЯ ЩЕ СЪЗДАДЕ ЕЛЕКТРОННИ ИНФРАСТРУКТУРИ ОТ СВЕТОВНА КЛАСА", 15 May 2018, [link](#).
- (IICT) Международна конференция „Електронни инфраструктури за върхови постижения в науката в Югоизточна Европа и Източното Средиземноморие“, Bulgarian Academy of Science News Blog, 14 May 2018, [link](#).
- (GRENA) On March 19, 2018 newspaper Navigatori published article of R. Kvatadze about GRENA activities including participation in R&D projects, [link](#).

- (IPB) IPB established a successful collaboration with the Serbian Science Television (Srpska naučna televizija), and with a popular (21,000 followers) Facebook page Science Through Stories (Nauka kroz price). The Facebook page Science Through Stories prepared and posted the article "Sahara dust hunters" about the VI-SEEM DREAMCLIMATE service. The same service was presented on a popular TV show (Belgrade's chronicle) that is broadcasted on the Serbian national television.
- (IPB) In February 2018 IPB became the first National institute of the Republic of Serbia. During this and the following month, large number of journalist visited the institute, and interviewed IPB's researchers about their activities. The VI-SEEM project has been presented in several interviews, which were broadcasted on the national television channels.
- (IIAP-NAS-RA) Communication campaign to present the institute (by highlighting the international collaboration including the VI-SEEM project) through the Armenian H3 TV channel, [link](#).
- (UKIM) News article on one of the most read academic portals fakulteti.mk about the VI-SEEM project and the national dissemination event, [link](#).
- (UKIM) Live interview for the national radio regarding the VI-SEEM project and the national dissemination event, 19.10.2017
- (IICT) BTA.bg: "[EU Commissioner Maria Gabriel visits IICT-BAS](#)", 13, October, 2017, the date when Bulgaria joined EuroHPC.
- (IICT) Youtube: [EU Commissioner Maria Gabriel at a meeting with heads of IICT-BAS](#), 13 October 2017.
- (IPB) Youtube: VI-SEEM project (<https://youtu.be/Qphcnbni61c>),
- (IPB) Youtube: VI-SEEM Climate Scientific Community (https://youtu.be/Y-Wjg4W_xcE),
- (IPB) Youtube: VI-SEEM Life Sciences Community (<https://youtu.be/DGr0Nutexis>),
- (IPB) Youtube: VI-SEEM Digital Cultural Heritage Community (<https://youtu.be/BTZ4RbBnuZE>),
- (IPB) Youtube: VI-SEEM - Protein denaturation induced by surfactants (<https://youtu.be/b-0tLQyxnaQ>).
- (Uni-BL) Production of longer 10 minutes segment for national TV and their show "Kvadrat na znanje" presenting the project and cooperation with relevant institutions, 2017
- (Uni-BL) Producing shorter ~1 minute segment for "Dnevnik" (main daily news show), 2017
- (Cyl) Facebook: Data Management and Semantic Structures for Cross-disciplinary Research in the South East European and Eastern Mediterranean (SEEM) region, 25-27 June 2018, The Cyprus Institute.
(<https://www.facebook.com/CyprusInstitute/photos/a.202536109774216.58934.132474073447087/2069984773029331/?type=3&theater>)
- (Cyl) Facebook: VI-SEEM and MAPS joint Workshop: 3D Visualisation of Nonuments (<https://www.facebook.com/CyprusInstitute/posts/2039468212747654>)

Specifically, the project has created a number of videos about the scientific communities and the project itself, following reviewers' recommendations.

Twitter

VI-SEEM twitter account is a core communication tool used to optimize the project visibility and to maximize the engagement of the scientific communities using the VI-SEEM resources. It dynamically releases updates related to the project progress, activities, the VI-SEEM infrastructure and services, events and other news. Through twitter the project has established and enhanced communication with its Virtual Research Communities, as well as with other international initiatives that share common aspirations.



Figure 21: The flow of the VI-SEEM twitter

VI-SEEM twitter contacts include projects and collaborations that are related to e-Infrastructures, services and data management such as GÉANT, EGI, EUDAT, etc., as well as electronic newsletters and magazines, universities, libraries, etc.

Twitter multiplies outreach as it facilitates the promotion of news in a way that it can reach thousands of users.

The flow of the VI-SEEM twitter activity is displayed on the website homepage.

LinkedIn

Regular updates of the major project activities were posted on the LinkedIn professional network. All regional and national training events were announced, calls to access resources were regularly published, along with presentations of the projects partners. All the projects newsletters were disseminated among the LinkedIn community. Among the most viewed

posts were the calls for project proposals and newsletter issues, some of them reaching more than 1000 impressions.

2.4 Dissemination events: statistics and analysis

This section is organized in the following way: first, we present the VI-SEEM conference, which is the central dissemination event organized by the project, followed by the national dissemination events held in the reported period, then we present the VI-SEEM presentation at external events (focusing on the large European events during the period). In the last two subsections we present participation in scientific conferences and analysis of scientific publications. Due to the large amount of events, the lists which support this section, are presented in 4 Annexes: Annex 1 contains list of 37 external events in the last 18 months where VI-SEEM is presented, Annex 2 contains the full list of 78 publications (54 during the second period), Annex 3 contains the program of the Regional conference (including list of 46 scientific presentations – 35 oral and 11 posters), and Annex 4 presents list of 45 selected scientific presentations. Thus, the total number of scientific presentations of VI-SEEM results is 91 (46 in Annex 3 plus 45 in Annex4).

2.4.1 Regional conference

The VI-SEEM regional conference “e-Infrastructures for excellent science in Southeast Europe and the Eastern Mediterranean” was held in Sofia, Bulgaria, on 15-16 May 2018 (see Annex 3 for the conference agenda). The place and time were chosen in order to have the maximal visibility: during the Bulgarian presidency, in the week of the high level political meeting in Sofia dedicated to cooperation with Western Balkans. The regional conference was colocated with the e-IRG Open workshop in Sofia.

The conference was a unique opportunity for regional scientists to showcase their work in selected research fields relevant for the region, as well as for presenting the latest achievements resulting from the collaboration of countries in the region of Southeast Europe and Eastern Mediterranean in the area of e-Infrastructures and their use. The conference gathered e-Infrastructure providers, scientists and researchers, and the policy makers from the region and beyond.



**International
Conference:
“E-Infrastructures
for
Excellent Science
in Southeast
Europe and
Eastern
Mediterranean”**

*15-16 May 2018,
Sofia, Bulgaria*



Vi-SEEM receives funding from the European Union's
Horizon 2020 research and innovation programme
under grant agreement No 675121



Figure 22: Banner and conference materials

Prof. Ivan Dimov, Deputy Minister for Education and Science, Bulgaria, opened the conference on 15 May. Dr Augusto Burgueno Arjona, Head of the e-Infrastructure & Science Cloud Unit of the European Commission provided a keynote presentation on the EOSC implementation roadmap. The conference provided a holistic view on the history, present status and perspectives of the regional e-Infrastructure collaboration, including the analysis of the key developments and regional contribution to the European goals. Further, digital services for Open Science offered in the framework of the H2020 VI-SEEM project were presented, as well as the flagship Digital Cultural Heritage user Community of South East Europe & Eastern Mediterranean, and the regional perspective of the Bulgarian e-Infrastructures.



Figure 23: Regional conference participants

The first day of the event ended with a panel to discuss regional collaboration for research, education and technological development and the value of regional e-Infrastructures for scientific achievements in the region. Dr. Aleksandar Belic from IPB chaired this session, and actively participated in the panel discussion with Dr. Sasa Lazovic (Assistant Minister at the Ministry of Education, Science and Technological Development, Government of the Republic of Serbia), Prof. Constantia Alexandrou (Director of the Computation-based Science and Technology Research Center, Cyprus Institute), Dr. Augusto Burgueno Arjona (Head of the e-Infrastructure & Science Cloud Unit of the European Commission), Dr. Ognjen Prnjat (VI-SEEM project coordinator, GRNET), Mr. Sasa Ivanovic (Ministry of Science and ESFRI delegate, Government of Montenegro), and Prof. Dr Ramaz Kvatadze (Executive Director, Georgian Research and Educational Networking Association, on behalf of the Eastern Partnership connect initiative).



Figure 24: Regional conference: Panelists

The second day was dedicated to scientific results in the areas of climatology, life sciences and digital cultural heritage, which have been achieved using the integrated regional e-Infrastructure VI-SEEM platform. The VI-SEEM scientific results were presented by 46 presentations (35 oral presentations and 11 posters).



Figure 25: VI-SEEM Conference: The poster session during the second day

Also, a number of related regional and pan-European initiatives from the 3 relevant scientific fields presented their views.

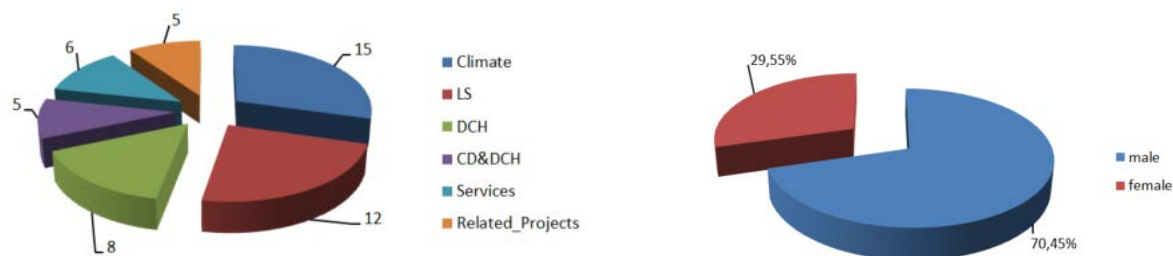


Figure 26: VI-SEEM Conference: (a) Distribution of scientific presentations by a field, and, (b) male/female participation in the conference

2.4.2 National dissemination events

National dissemination events are organized in each of the partners' countries. The project initially planned 16 national dissemination events organized by the project, and in reality the national dissemination events are 18, of which 9 were held during the reported period. Generalized information about the national events is given in Table 1. Each partner has chosen the most appropriate form and time slot of the event. In some countries (Romania, Georgia, BiH, Jordan) the national events had two editions. Information about the national dissemination events can be found in the project web site [8] and their agenda is given in the project agenda system [11]. Short description of the national dissemination events held in the second project period is given in subsection 2.4.2 after the Table 1 (the description of the events during the first project period is given in [7]).

Project Month, place	Organizer	Country	Link
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M10 (13 July 2016), Chisinau	11-RENAM	Moldova	Link
M12 (27 September 2016), Yerevan	12-IIAP-NAS-RA	Armenia	Link
M12 (September 2016), Timisoara M24 (September 2017), Timisoara	06-UVT	Romania	Collocated with SYNASC2016 and SYNACS2017 conferences
M13 (7 October 2016), Tbilisi M24 (4 September 2017), Tbilisi	13-GRENA	Georgia	Collocated with 1st Eastern Partnership e- Infrastructure conf., and VIII International Conference of the Georgian Math. Union Link
M14 (3 November 2016), Sofia	03-IICT-BAS	Bulgaria	Link
M14 (8 November 2016), Banja Luka M28 (11 January 2018), Banja Luka	08-UoBL	Bosnia and Herzegovina	Link
M15 (9 December 2016), Larnaka	02-CyL	Cyprus	Link
M15 (December 2016), Amman M27 (December 2017), Amman	16-SESAME	Jordan	Collocated with SESAME annual conference (2016, 2017)
M17 (27 February 2017), Zabljak	10-UOM	Montenegro	Collocated with ICT 2017 conference
M19 (13 April 2017), Tirana	07-UPT	Albania	Link
M24 (28 September 2017), Alexandria	14-BA	Egypt	Link
M25 (18 October 2017), Skopje	09-UKIM	FYROM	Link
M31 (24 April 2018),	01-GRNET	Greece	Link

Athens			
M32 (May 2018), Budapest	05-NIIFI	HU	Link
M33 (June 2018), Belgrade	04-IPB	Serbia	Link

Table 1: VI-SEEM national dissemination events

Here we provide short descriptions of the national dissemination events held during the second project period.

National dissemination event in Serbia: HIGH PERFORMANCE COMPUTING IN FUNCTION OF BUSINESS ENHANCEMENT, 14-15 June 2018, Belgrade

Institute of Physics Belgrade (partner in the VI-SEEM project) and the Regional Economic Development Agency for Sumadija and Pomoravlje (partner in the InnoHPC project) jointly organized dissemination event at the Science Technology Park Belgrade, Serbia on 14 and 15 June 2018. The main aim of the event was to demonstrate HPC as a general-purpose technology capable to enhance innovative capacities of enterprises, especially SMEs.

The first day was organized at the Science Technology Park Belgrade. Through the several presentations and panel discussions business development opportunities that High Performance Computing can provide to small and middle scale companies were presented. Among the panel speakers were the representative from the Ministry of Education, Science and Technological Development of the Republic of Serbia, the directors of participating institutions, as well as coordinator of the VI-SEEM project. (More information on: <https://events.hpc.grnet.gr/event/73/>).



Figure 27: "National dissemination event in Serbia"

National dissemination event in Hungary: 28 May 2018, Budapest

The Governmental Information-Technology Development Agency (GITDA/KIFÜ) in close collaboration with Budapest Chamber of Commerce and Industry (BCCI) has organised the national dissemination event in Budapest, 28 May 2018. The representatives of small and medium-sized enterprises and higher education and research institutions have participated

in the one-day event, 45 participants. The results of VI-SEEM project (as KIFÜ is a consortium member) have been presented, drawing attention to the importance of transnational cooperation.

The event has provided the opportunity not only to show research and projects results achieved by using HPC technology, but also to introduce different scientific disciplines (i.e. chemistry, astrophysics, medicine, climate and space research), where modelling and simulation tasks performed without HPC would become extremely costly and time-consuming. During the afternoon workshop, HPC cooperation possibilities and alternatives of a wider HPC application in the field of research, higher education and industry have been overviewed for HPC stakeholders: e-Infrastructure providers, scientists, researchers and SMEs ([Link to the agenda](#)).



Figure 28: VI-SEEM dissemination event in Hungary

VI-SEEM National dissemination event: WORKSHOP ON MD BIOMOLECULAR SIMULATIONS/MODELING, 24 April 2018, Athens, Greece

VI-SEEM hands on workshop on MD biomolecular simulations / modeling was presented to existing and potential users of Molecular Dynamics packages the method, the necessary steps for a successful simulation, common practices, and common mistakes. The steps for a complete simulation workflow i.e. system setup up to final properties evaluation were presented using popular software packages. The aim of the course was to enable participants to efficiently use their preferred MD application (i.e. NAMD, GROMACS, LAMMPS, CP2K) for molecular modelling and molecular dynamics simulations, to create configuration files based on their needs, tuning the models, to efficiently use the resources based on the simulation details, and avoid common mistakes. More information on: <http://events.hpc.grnet.gr/event/65/>

Second VI-SEEM dissemination event: 11 January 2018, Banja Luka, Bosnia and Herzegovina

The second dissemination event was organized on the 11th of January, 2018, at the Faculty of Philosophy, University of Banja Luka. Three presentations were given by Mihajlo Savic and Ivana Pandzic.



Figure 29: M. Savic gives a presentation

VI-SEEM national dissemination event in Jordan: 18-19 December 2017, Amman

VI-SEEM dissemination event was collocated with 15th SESAME Users' Meeting which took place in Amman on December 18th and 19th, 2017. The meeting brought together scientists from the region and world experts in the various fields of synchrotron applications, and provided a platform for information exchange and discussions of ongoing collaborative efforts within the community. It included updates on the project, invited speakers on selected topics related to SESAME scientific plans. Researchers from the Region presented their research results and/or their plans for SESAME by oral or poster contributions and they met together onsite for discussion, interaction and networking. A lot of researchers expressed great interest towards the services provided by VI-SEEM.



Figure 30: Picture from the VI-SEEM event in Amman

VI-SEEM national dissemination event: 18 October 2017, Skopje, FYROM

The national dissemination event for the project was organized on the 18th of October, 2017, at the Amphitheater of the Faculty of Computer Science and Engineering, University

Ss Cyril and Methodius in Skopje. The event was attended by more than 35 participants, from the academia (faculties of computer science and engineering, natural science, medical science, pharmaceutical faculty etc.) including students, public institutions (such as the National library, the Directorate for preservation of cultural heritage, M-NAV) and industry (Alkaloid). The agenda is available at <https://events.hpc.grnet.gr/event/55/timetable/#20171018>.

VI-SEEM national dissemination event: 28 September 2017, Alexandria, Egypt

As partner in the VI-SEEM project, the Bibliotheca Alexandrina held a one-day national dissemination event to present the project and resources it provides to members of the different scientific communities in Egypt. The event took place on Thursday, September 28, 2017, at the Bibliotheca Alexandrina in Alexandria, starting at 10:30 AM and ending at 03:00 PM. The aim of the event was to present the VI-SEEM project, present the VirMuF application developed by the BA within VI-SEEM for constructing virtual museums with no coding required, and present the local HPC infrastructure operated by the BA. One hour of hands-on HPC experience followed by a visit to the BA-HPC facility and a general tour of the BA were also included in the program. Registration was open to all who are involved with scientific research in Egypt. <https://events.hpc.grnet.gr/event/52/>



Figure 31: Picture from the VI-SEEM event in Alexandria

Second VI-SEEM national dissemination event in Georgia: 4-8 September, 2017, Batumi

GRENA organized the second VI-SEEM national dissemination event during VIII International Conference of the Georgian Mathematical Union which was held on September 4-8, 2017 at Batumi State University in Batumi, Georgia <http://www.gmu.ge/Batumi2017/index.html>. During this session presentations about e-Infrastructure for research and education in Georgia and climate studies performed by the Georgian climate research group in the framework of VI-SEEM project were presented:

VI-SEEM national dissemination event, 13 April 2017, Tirana, Albania

The national VI-SEEM dissemination event in Albania was held in Tirana on 13 April 2017, in the premises of the Faculty of Information Technology, Polytechnic University of Tirana. The program included presentations of the project VI-SEEM, local infrastructure and its

usage procedures, applications in meteorology, life sciences and cultural heritage, and training for concepts of parallel programming. More than 40 participants took part in the event.



Figure 32: Audience of the VI-SEEM dissemination event in Tirana

2.4.3 VI-SEEM presentation at external events

Following our dissemination strategy, we have organized our work in order to present the VI-SEEM results and activities at the most important European and national events relevant to the project. The List of representative external events with VI-SEEM presentation reported during the second project period (M19-M36) is presented in Annex 1. Here we briefly describe the more important of them divided in three groups:

Large European events:

A special attention was given to the events organized during the Bulgarian presidency of the Council of the European Union, 1 January 2018 – 31 June 2018, taking the opportunity that one of the priorities was the digital connectivity with Western Balkans. The project VI-SEEM was presented at the most relevant events during this period:

EU Flagship conference on RIs “Research Infrastructures beyond 2020 – sustainable and effective ecosystem for science and society” (<http://risofia2018.eu/>), 22-23 March 2018, Sofia, co-organised by the European Commission and the Bulgarian Presidency of the Council of the European Union, with more than 300 participants. The overall objective of the conference was to explore and discuss a concrete set of actions to foster sustainability and impact of European research infrastructures on industry, policy and society. VI-SEEM project was presented with a special booth at the conference exhibition – with 4 posters (three of them specially created for the conference), project brochures and on-line project presentation. The VI-SEEM booth was visited by many participants including Mr. Krassimir Valchev- Minister of the Bulgarian Ministry of Education and Science (MES), Prof. Ivan Dimov, Deputy Minister of MES, Mr. Jean-David Malo – Director, Directorate General “Research and Innovation”.



Figure 33: The VI-SEEM booth at the conference exhibition

Sofia Digital Forum “Shaping Europe’s Digital Future: HPC for Extreme Scale Scientific and Industrial Applications”, 19 April 2018, Sofia, co-organised by the European Commission and the Bulgarian Ministry of Education and Science, under the auspices of the Bulgarian Presidency of the Council of the European Union (<https://eu2018bg.bg/en/events/1572>), with about 300 participants. The event aimed to raise awareness for the role of high performance computing (HPC) systems in shaping Europe’s digital future and providing solutions for a wide range of social and economic challenges. It emphasized the impact of HPC on the development of research and innovation, with a particular focus on increasing the competitiveness of the wider area of Southern and Eastern Europe. Three representatives of the VI-SEEM partners - Prof. Constantia Alexandrou (the Cyprus Institute, Cyprus), Prof. Panayiotis Tsanakas (GRNET, Greece) and Prof. Svetozar Margenov (IICT-BAS, Bulgaria) – participated in the Panel Discussion on the role of HPC in the South and Eastern Europe moderated by Dr. Thomas Skordas (EC) and aimed to discuss concrete perspectives, challenges and collaborations of HPC development, including skills development, in Eastern and South European countries - where they presented results of the SEEM collaboration including current VI-SEEM activities.

Digital Assembly, 25-26 June, Sofia, co-organised by the European Commission and the Bulgarian Presidency of the Council of the European Union (<https://ec.europa.eu/digital-single-market/en/events/digital-assembly-2018-sofia>). The Digital Assembly is a major annual forum that gathers more than 1,000 stakeholders and high-level policymakers to debate the EU digital policy and the implications of recent technological developments.

3rd Annual Seminar of the Disaster Risk Management Knowledge Centre, was also event from the calendar of the Bulgarian presidency. It was held in the hall of the Bulgarian Academy of Sciences, on 26-27 of April 2018. The audience (about 200) included not only researchers, but representatives of the local municipality

administrations in Bulgaria, and SMEs as well. The VI-SEEM materials were included in the conference packages, given to all participants and project representatives were there to explain the options (access to infrastructure, services, etc.) that VI-SEEM offers.

Western Balkans 6 Digital Summit, 18-19 April 2018, Skopje. VI-SEEM project presented at the FCSE, UKIM booth at the. Today and tomorrow, the Western Balkans Digital Summit ([#DSWB6](https://lnkd.in/dJ95dzS)) is happening in Skopje. The Summit brought together representatives from governments, businesses, regional organizations, CSOs, academia and youth with the goal to set up a digital platform for exchanging of ideas and proposals. More about the summit: <https://lnkd.in/dJ95dzS>.



Figure 34: VI-SEEM at the UKIM/FCSE booth of the WB6 digital summit expo

SIG-BioExcel 2nd Edition in collaboration with VI-SEEM: Advanced Simulations for Biomolecular Research, 8 September 2018, Athens, Greece.

The workshop provided participants with an informal setting to discuss technical issues, exchange research ideas, and to share practical experiences for the topic of advanced biomolecular simulations. The meeting took place as a satellite event during the European Conference for Computational Biology (ECCB2018). The event hosted invited talks by top-scientists, industrial (pharma) representatives, flash presentations of the highest quality abstracts from the poster session, and lunchtime hands-on presentation of cutting-edge high-end systems. The workshop provided opportunities to participants to showcase their success stories (posters and selected flash talks), discuss upcoming challenges and how they might be addressed, share experience and best practices to develop standards, create networking and collaboration opportunities with each other, and provide input into the development of improved software and workflows. The event was jointly organized with Bioexcel, a Horizon 2020 center of excellence, bringing together stakeholders of 1) core applications that are supported by the center – HADDOCK (integrative modelling),

GROMACS (molecular dynamics simulations) and CPMD (hybrid QM/MM methods) and 2) workflow environments and platforms for data integration and analysis such as CWL, Galaxy, Taverna, Open PHACTS, COMPSs. VI-SEEM was represented by Dr. Zoe Cournia, the Life Sciences Scientific Community leader, who described to participating scientists the access to state of the art VI-SEEM virtual platform, which integrates the underlying e-Infrastructure layers with generic/standardized as well as domain-specific services, promotes capacity building, fosters interdisciplinary approaches, and provides user support and training programmes for the user communities in the SEEM region. Also, Dr. Zoe Cournia presented a VI-SEEM successful project entitled: *"Computer-aided drug design to predict binding poses and relative binding affinities for FXR ligands in the D3R Grand Challenge 2"*. The workshop speakers were world-class renowned scientists in biomolecular simulations from 9 European countries. The industry perspective of biomolecular simulations was presented by representatives of three European pharmaceutical companies: Novonordisk, Glaxo-Smith-Kline, and Janssen Pharmaceuticals.

Other large EU events:

e-IRG Open Workshop, 14-15 May 2018, Sofia with more than 100 participants (researchers, policy makers, industry representatives). In the panel discussion "ESIF and e-infrastructure development: the SEE case" four representatives of VI-SEEM partners took part (IICT-BAS, CyI, NIIF, GRNET) and pointed out the role of SEEM collaboration in the e-infrastructure development in their countries as a whole and, specifically, the current VI-SEEM activities.



Figure 35: Participants in the panel discussion at the e-IRG workshop

Digital Infrastructures for Research (DI4R), "Connecting the building blocks for Open Science", 30 November to 1 December 2017, Brussels. The VI-SEEM project was presented by Anastas Misev with the oral presentation "Federated digital services for Open Science in Southeast Europe and the Eastern Mediterranean" where the innovative approach developed by the project VI-SEEM was described focusing on:

- The integrated state-of-the-art platform, built jointly by e-Infrastructure providers and end users, consisting of computational resources (HPC, cloud, Grid), data

storage and management, visualization tools and discipline-specific services, etc, provided via an integrated Virtual Research Environment.

- The fact that the platform serves a large geographical area (South Eastern Europe and Eastern Mediterranean) of about 300 million inhabitants having a diversity of e-Infrastructures with the aim to enable high-caliber research in strategic areas for the region, namely the Life Sciences, Climatology and Meteorology, and Digital Cultural Heritage, <https://indico.eji.eu/indico/event/3455/session/3/contribution/36>

Events in partner countries:

Apart from large European events, in each partner country the project team explored important local events for project dissemination. Thus, VI-SEEM has been presented at various events like Open Science Days (in Montenegro and Cyprus), Exhibition for scientists and general public (in Bulgaria), Science Festival, (25-29 April 2018, Technopolis city of Athens), at industrial meetings and university seminars, etc. The most important events are included in the list in Annex 1 and in Marketing report (section 5).

As an example, we point out the annual HPC meeting in Bulgaria, which during the reported period was held on 29-31 October 2017, in Panagyurishte – at this event there was VI-SEEM project presentation and 25 scientific presentations related to VI-SEEM. The HPC users from UPT (Albania), UKIM (FYROM), IIAP-NAS-RA (Armenia) and Hungary also participated in this workshop.



Figure 36: Participants at the HPC meeting in Bulgaria

Scientific conferences:

The list of selected conference presentations is given in Annex 4.

Here we outline that during the second project period we continue our successful practice from the first period: to organize special sessions at the relevant highly ranked scientific conferences in the region. We would like to mention here several traditional conferences:

- LSSC 2017, Sozopol, Bulgaria, June 2017, Special session "HPC AND BIG DATA: ALGORITHMS AND APPLICATIONS";

<http://parallel.bas.bg/Conferences/SciCom17/announcement.html>

- SYNASC 2017, Timisoara, Romania, 21-24 September 2017, HPC workshop;
<https://synasc.ro/2017/workshops/>
- ICT Innovations 2017, Ohrid, FYROM, 17-19 September 2017;
<http://ictinnovations.org/ict-innovations-2017>
- CSIT 2017 conference in Yerevan, Armenia, September 25-29 2017;
(<https://csit.am/2017/>)

2.5 Scientific publications: overview and analysis

The total number of reported published papers presenting VI-SEEM results is 78, of which 24 are published during the first project period, and 54 are published in the last 18 months. 59 of the papers are open access publications. The papers can be divided in two categories: VI-SEEM research oriented papers (51 publications) and VI-SEEM service oriented papers (27 publications). Each paper with acknowledgement to VI-SEEM describes an application/service/method/algorithm/tool/approach/experience /benchmark/ etc. related to the project. The online access to the papers is <https://vi-seem.eu/category/events-training/scientific-papers/>. The full list of VI-SEEM publications is given in Annex 2 of this deliverable.

The main WP2 achievement during the reported period in the area of scientific publications is the organizational and editorial work for publishing of two special issues of the open access scientific journals:

- Cybernetics and Information Technologies (CIT), Volume 17, No 5, Sofia, 2017 - Special issue with selected papers from the workshop "Two Years Avitohol: Advanced High Performance Computing Applications 2017",
http://www.cit.iit.bas.bg/CIT_2017/CIT_17-5s.html
- Scalable Computing: Practice and Experience (SCPE), Vol 19 No 2 (2018): Special Issue on E-Infrastructures for Excellent Science: Advances in Life Sciences, Digital Cultural Heritage and Climatology, <https://scpe.org/index.php/scpe/issue/view/141>

3 Training events summary

During the last 18 months of the project there are 11 training events, 4 of which organized on the regional level. Together with the 11 training events organized in the first half of the project, the total number of training events has reached 22, well over the original plan of 13 training events for the project duration as given in the D2.4 - the training plan deliverable. The extra activities have helped the process of dissemination of the work done within the project, boosting the uptake of the offered services.

In parallel to the training events, additional work has been done on the training platform and material gathering in order to make the access to the training information easier for researchers.

In this section the changes and additions to the training platform and material are discussed, together with a quick review and statistical analysis of the training events organized in the second half of the project.

3.1 Training platform and material

In parallel to the training events, additional work has been done on the training platform and material gathering in order to make the access to the training information easier for researchers.

As the Indico agenda system is the main page for accessing all information concerning the offered VI-SEEM training events at <https://events.vi-seem.eu/category/5/> it has been identified that visitors would find it easier to search for an interesting event if a common naming nomenclature for the training events was established. Towards this end, all training events have been renamed so that the first part of the event reflects the type of event (national-nat or regional-reg), the location of the event and the scientific community that the event targets (life sciences-LS, climate-CL, digital cultural heritage-DCH). In this way, interested parties do not need to open each individual event so as to read the main information and find out whether the event fits their research interests.

In addition, the linking between the training agenda platform and the training portal has been improved. The main pages of all training events have been linked to the training portal (<https://training.vi-seem.eu/>) in a consistent fashion. Also, training events related materials section has been defined on the training portal so that users can easily find or refer back to materials that have been used on a given training event.

Other improvements on the training portal main page layout have been made to simplify the access to training materials on different topics. Each group of training materials has been divided into subgroups and a description of the available materials has been added in order to help the visitor choose the most appropriate material based on their goal.

A smart search function has also been added, where the keywords entered are used to search across all topics, subgroups, titles and training materials descriptions in order to find all documentation related to the given keywords.

3.2 Training events

Unlike during the first half of the project where a number of training events were focusing on the general aspects of training for usage of different general services and infrastructure, the training events organized in the second half of the project were mainly focused on providing training opportunities to researchers from the targeted scientific communities and the specific flagship services that the project offers them.

No:	Event	Type [National/Regional]	Project Month	Location
1	VI-SEEM NAT-AL CL: Infrastructure and Applications	N	M19	Albania
2	PRACE 2017 Spring School joint event with VI-SEEM - System Administration and Data/Computational Services for Scientific Communities	R	M19	Cyprus
3	VI-SEEM NAT-IL CL: Introduction to Google Earth Engine (GEE) and Remote Sensing and Climate Applications	N	M21	Israel
4	VI-SEEM REG CL: Regional Climate training event	R	M25	Serbia
5	VI-SEEM NAT-GR CL: National training event in Greece	N	M27	Greece
6	VI-SEEM NAT-MN LS: Life Science Training in Montenegro	N	M31	Montenegro
7	VI-SEEM NAT-GR LS: Hands on workshop on MD biomolecular simulations / modeling	N	M31	Greece
8	VI-SEEM REG LS+CL+CH: 3D Visualisation of Monuments	R	M32	Cyprus

9	VI-SEEM NAT-MD LS: Usage of VI-SEEM infrastructure for Mobile DICOM	N	M33	Moldova
10	VI-SEEM REG LS+CL+CH: Workshop Data Management and Semantic Structures for Cross-disciplinary Research in the SEEM Region	R	M33	Cyprus
11	VI-SEEM NAT-GR LS: 2018 NWChem Workshop	N	M36	Greece

Table 2: General information about the organized training events

Table 2 provides a summary of all training events organized during this period. There are 11 training events in total. One event is organized as a joint activity together with the PRACE project and is targeting a more general audience with separate system administrators track and developers track focusing on HPC, data management and domain specific services available on different computational resources. The rest of the events are focusing on one or more of the targeted scientific communities with 3 of the events being larger events organized on the regional level and 7 local national events. The first of the other three regional events were targeting general services and services specific for the climate community, the next regional event was organized around all targeted communities (LS, CL and DCH) fostering a collaborative environment for multi-disciplinary cross-community approaches. The last regional event was a joint event with the SIMDAS center of excellence, focusing on the data management semantic structures for cross-disciplinary research in the region. The figure below provides some statistics concerning the number of participants in the regional training events and the countries they come from ranging from 30 to almost 70 participants, from 9 to 20 countries.

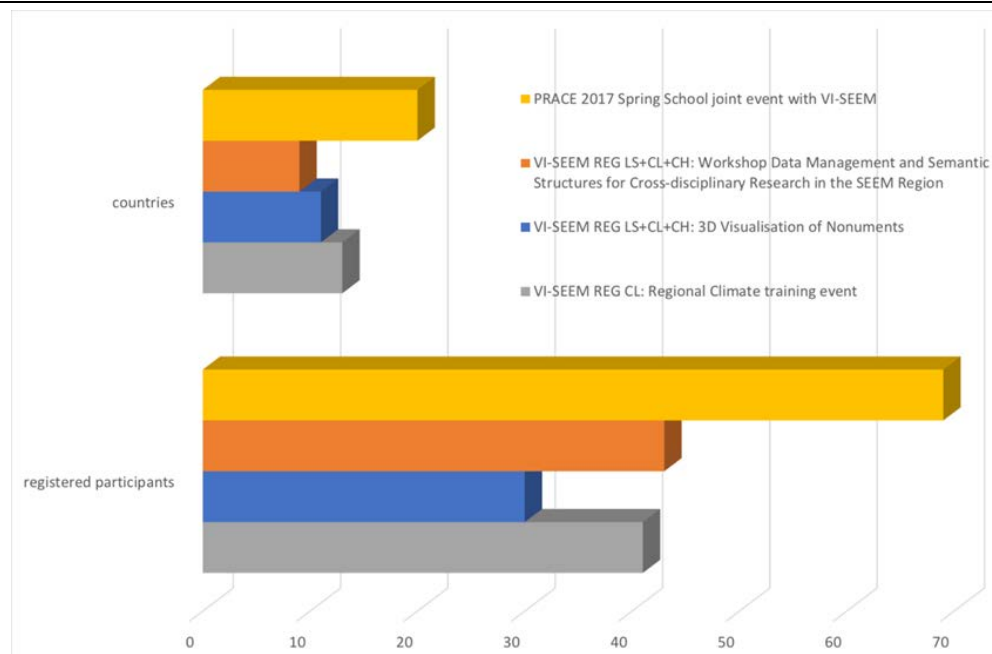


Figure 37: Regional training participants' statistics

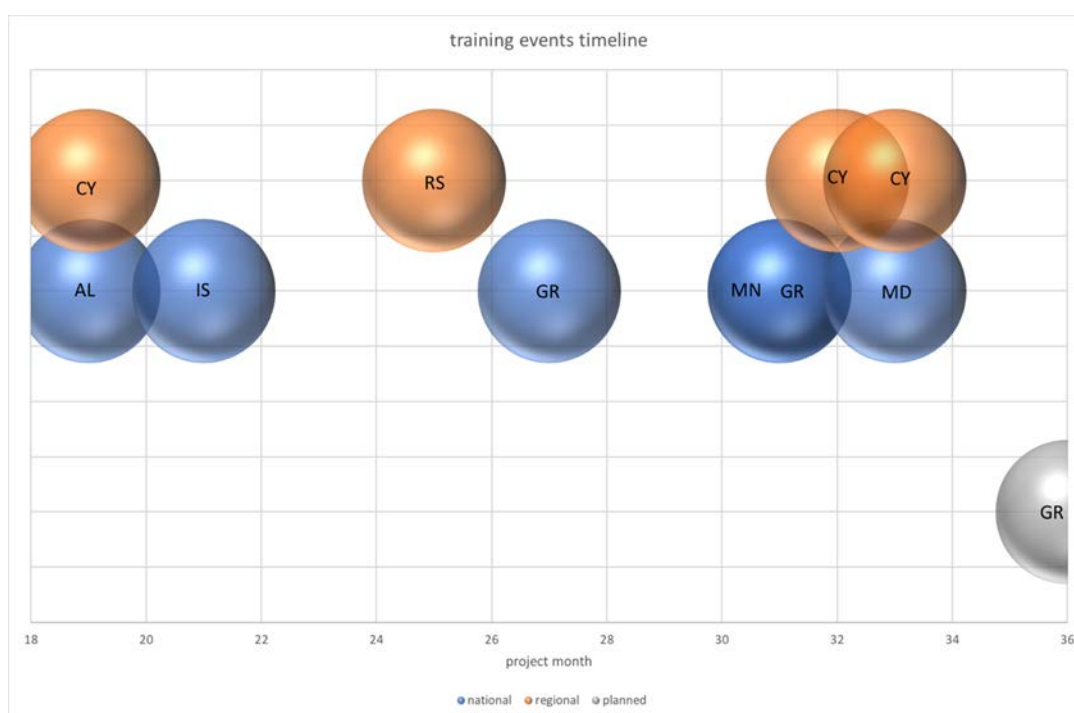


Figure 38: Timeline of organized training events per type

As given in the figure, the regional training events have been organized every 6 months starting from M19, while the national ones are spread out around them with a gap during the summer periods. The last training organized event is planned to be carried out in the last month of the project (presented as planned on the figure).

The organized national events were focused on two scientific communities (LS and CL) as the most active ones in the given partner countries. The average statistics about the already organized and held national and regional training events are provided in the following figure. According to the gathered data from the evaluation forms and the summary training reports, all training events have been evaluated with a score of at least 4 (on the scale of 0 to 6) with at least 20 registered participants, where higher interest has been given by the climate communities compared to the life sciences national communities.

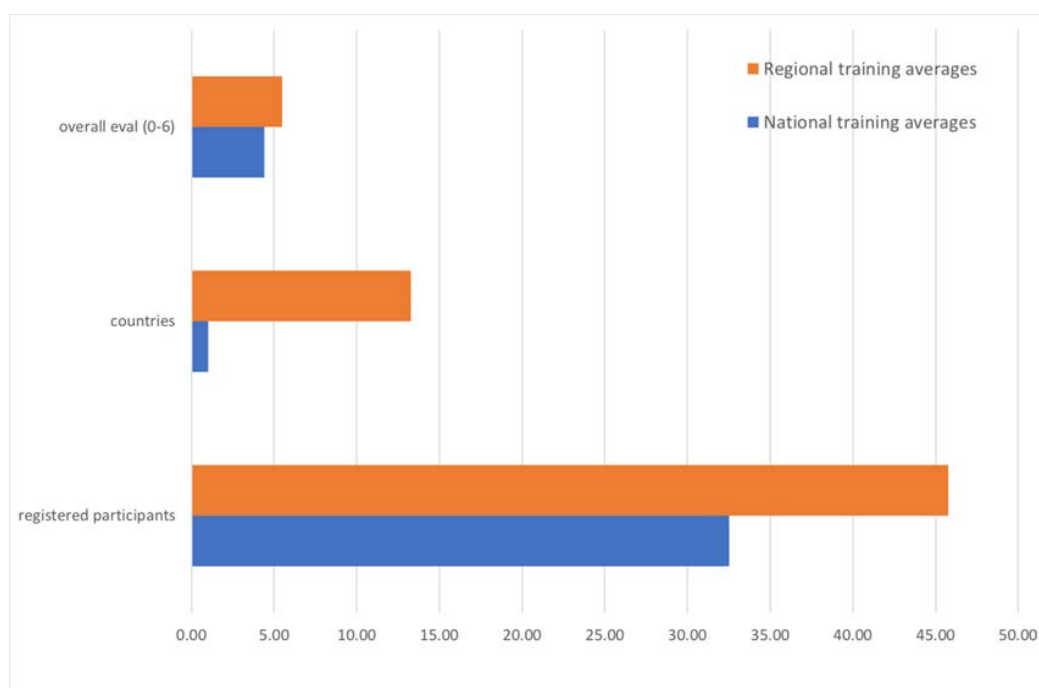


Figure 39: Averaged statistics for the organized national and regional training events

The last provided analysis provides information about the gender balance per different target community across all training events. Based on the gathered information all events have been pretty well balanced and even 2 of the national events (one targeting climate, and another targeting life sciences) have been made up of a dominantly female auditorium with 65-75% of female registered participants. On average across all topics and events, the whole range of training events have targeted more than 350 participants, out of which around 60% were male and 40% female.

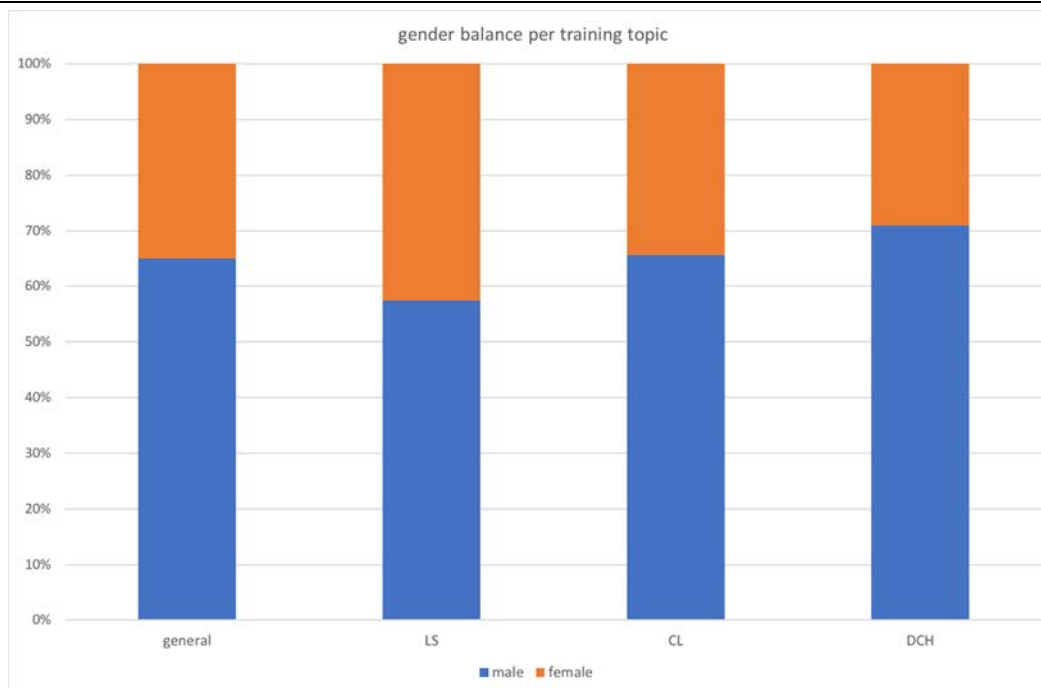


Figure 40: Gender balance on training events organized per training target community

The following section provides a short report on each individually organized training event.

VI-SEEM NAT-AL CL: Infrastructure and Applications

The national VI-SEEM training event in Albania was held in April 2017, at the premises of UPT, Tirana, and included presentations of the project VI-SEEM, local infrastructure and its usage procedures, applications on meteorology, life sciences and cultural heritage, and training for concepts of parallel programming. The event was attended by 40 participants. More info about the event can be found at: <https://events.hpc.grnet.gr/event/45/>

PRACE 2017 Spring School joint event with VI-SEEM, Cyprus - System Administration and Data/Computational Services for Scientific Communities

The PRACE 2017 Spring School was a joint training event with the EU H2020 VI-SEEM project organised by CaSToRC at The Cyprus Institute. The school was designed as a 3-day event with the aim to serve the training needs of different representatives from PRACE, VI-SEEM and European communities with two parallel sessions - a Developer Track and a System Administration Track.

The Developer Track brought together trainers from The Cyprus Institute, the National Center for Supercomputing Applications (NCSA) and the Juelich Supercomputing Center who delivered various subjects such as "Parallel and Scalable Machine Learning and Deep Learning", "Accelerator Programming" and "Data Visualisation". In total 29 participants

followed this track from Bulgaria, Cyprus, Greece, Hungary, Romania, USA and other regional countries.

The Systems Administration Track was initiated by CaSToRC and it was the first of its kind in a PRACE seasonal school. It was attended by 35 participants from Cyprus, Czech Republic, Germany, Greece, Hungary, Israel, UK, Egypt and other South Eastern European countries. Trainers from Ghent University, NCSA, Juelich Supercomputing Center and industry delivered various subject such as "Modern Scientific Software Management", "Security Aspects of HPC Centers", "System Monitoring", "Data Services" and "Cloud Services". The track also included a discussion on the "Future of HPC Administration" where participants and trainers gave their opinions, comments and advice on the future trends they believed would shape future trends in HPC System Administration. More about the training at: <https://events.hpc.grnet.gr/event/42/>



Figure 41: PRACE 2017 Spring School joint event with VI-SEEM

VI-SEEM NAT-IL CL: Introduction to Google Earth Engine (GEE) and Remote Sensing and Climate Applications

IUCC in cooperation with the VI-SEEM project and Bar-Ilan University hosted a successful introductory workshop on Google Earth Engine (GEE) invites researchers and graduate students on Sunday, June 4, 2017 at Bar-Ilan University. The room was filled to capacity, indicating the importance and relevance of the program for researchers and graduate students.

GEE is a free cloud platform that includes data from satellites and many models that enables fast and efficient viewing and processing of large data sets. The raw data and processed results can be downloaded to be worked on with other tools as well. Participation in the workshop was free of charge. <https://events.hpc.grnet.gr/event/47/>



Figure 42: Participants at the GEE oriented training event

VI-SEEM REG CL: Regional Climate training event

The 3 day training event (11-13 October 2017, Belgrade) was focused primarily on the Climate community, but also addressed the possibilities and services that the VI-SEEM process offers to the researchers. The target audience was researchers and developers from the Climate and other research communities, current and potential users of the VI-SEEM e-Infrastructure and services.

Through lectures and hands-on sessions, during the first day this training event introduced participants with climate modelling and downscaling, WRF-Chem model, DREAMCLIMATE service, Earth system model post-processing and visualization, the Live Access Server, and efficient exact computations for molecular species relevant to atmospheric chemistry. The following two days were devoted to usage of VI-SEEM services.



Figure 43: VI-SEEM REG CL: Regional Climate training event

VI-SEEM NAT-GR CL: National training event in Greece

The Greek Research and Technology Network (GRNET) organized a national training event on December 11-12, 2017, in Thessaloniki, at the Research Dissemination Center (KEDEA), in collaboration with Aristotle University. The training focused on the national supercomputing infrastructure, the support for the climate community and the services offered by the VI-SEEM project.

Specifically the topics covered during this event was the access policy, tools and usage of ARIS High-performance computing infrastructure, the numerical weather prediction in high performance computing infrastructure - Application of WRF model in ARIS, the VI-SEEM Virtual Research Environment and services, the Scientific Computing Services at AUTH and an introduction to parallel computing.

The audience (35 registrants) was mainly young researchers and PhD students from the Climate community. More information for the event can be found at <https://events.hpc.grnet.gr/event/60/overview>

Usage of VI-SEEM infrastructure for Mobile DICOM

This training event is focused on benefits of using VI-SEEM infrastructure for working in DICOM Network for Doctors and Researchers. Special task is using VI-SEEM infrastructure and services for Mobile version of DICOM Viewer that will make benefits for doctors and patients.

The problem of storage and visualization of medical images collected by various medical equipment is actual for latest 10 years for every medical institution. On the other hand, access to the medical investigation datasets and solving the problem of personal patient data security is important for scientific community and institutions that require this data.

"DICOM Network" project was developed for solving these problems for different actors in the system based on the various customized roles. This article describes the problems and possible solutions for optimization of medical images storing, providing stable and secure access, based on the distributed warehouse for huge volumes of data with different levels of access.

VI-SEEM project deploys and offering user-friendly integrated e-Infrastructure platform for Scientific Communities in Climatology, Life Sciences and Cultural Heritage for the South-Europe and Mediterranean regions by linking compute, data and visualization resources, as well as generalized services, software and tools.

Training event was visited by 22 participants from different institutions IMU, CNAM, Ministry of health of Republic of Moldova, etc., <https://events.hpc.grnet.gr/event/71/>.

VI-SEEM National dissemination event in Greece: Hands on workshop on MD biomolecular simulations / modelling

The Greek Research and Technology Network (GRNET), organized a second national training event on April 24, 2018, in Athens. The training focused on the national supercomputing infrastructure and the services offered by the VI-SEEM project.

The purpose of the event was to present to existing and potential users of Molecular Dynamics packages the method, the necessary steps for a successful simulation, common practices and common mistakes. The steps for a complete simulation workflow i.e. system setup up to final properties evaluation were presented using popular software packages.

The audience (15 participants) were mainly young researchers and PhD students from the Life Science community (Physics/Chemistry/Biology background), with programming skills

and aware of Parallel environments. More information for the event can be found at <https://events.hpc.grnet.gr/event/65/>



Figure 44: Hands on workshop on MD biomolecular simulations/modelling

VI-SEEM REG LS+CL+CH: 3D Visualisation of Nonuments

The 3D Visualisation of Nonuments training workshop (7-8 May 2018) was jointly organized between the VI-SEEM (The Cyprus Institute) and the MAPS Creative Europe (ARTos Foundation). It was a two day workshop the main goal of which was to provide attendees a general idea on 3D documenting objects and what it takes to perform such a task on a Nonument (Hidden, Abandoned, unwanted or otherwise forgotten Monuments, Symbolic Architecture and Spaces of XX Century.)

The attendees were given the opportunity to get informed about ongoing work pursued at the three research centers of the Cyprus Institute. The training event presentations focused on topics such as photogrammetry, visualization and data management. In addition, the participants were informed about the H2020 VI-SEEM project and how the project can enhance their research enquiries and operation. Also, the participants of the workshop were introduced to the vision of SIMDAS, a Centre of Excellence for Simulation and Data Science in order to be informed about how their work could be benefitted by the capacity of this Centre. They also had the opportunity to visit Cy-Tera, the High Performance Computing facility of the Institute, and the Unmanned Systems Research Laboratory that conducts aerial surveys for atmospheric measurements and remote sensing applications. In the second part of the training the attendees took a day-long trip to Limassol, where they visited the Carob Mill. With the support of Cyl experts in aerial surveys with the use of drones and in photogrammetry, they scanned the Nonument of the Carob Mill and worked with experts to process the documented image-based data in order to generate the 3D reconstruction of the Carob Mill. <https://events.hpc.grnet.gr/event/66/>



Figure 45: The participants of the 3D Visualisation of Nonuments workshop attending the live drone field demonstration

VI-SEEM REG LS+CL+CH: Workshop Data Management and Semantic Structures for Cross-disciplinary Research in the SEEM Region

VI-SEEM and SIMDAS (Simulation and Data Science Center of excellence) jointly organized the Workshop Data Management and Semantic Structures for Cross-disciplinary Research in the SEEM Region on the 25th, 26th and 27th of June at the premises of The Cyprus Institute. Datasets produced by user communities in various scientific fields rely on different standards, approaches, and logical organization of links between data. Ontologies and Semantic structures and tools have been developed to improve data sharing, interoperability and data discovery. Hence, the Workshop aimed at bringing user communities from Life Sciences, Climatology and Digital Cultural Heritage together by providing them a stage for sharing knowledge, good practices and experiences. The Workshop probed the capacities that two H2020-funded projects, VI-SEEM and SIMDAS Phase 1, generated.



Figure 46: Poster created for the purposes of the workshop

The participants were provided the opportunity to be informed about the two H2020-funded projects as well as learn more about The Cyprus Institute and its facilities. The training event hosted presentations given by leading figures in the topics of ontologies such as Giannis Tsakonas (UPATRAS), Ruth Lovering (UCL) and Panos Constantopoulos (AUEB). In addition the training event provided the opportunity to the attendees to participate in Working Groups on Data Management given by the excellent researchers Achille Felicetti (PIN) as well as Niko Minadakis (FORTH). Furthermore, the training hosted presentations on related initiatives and projects such as E-RHIS (Franco Niccolucci (PIN)), GRAVITATE (Chiara Eva Catalano (IMATI-CNR)) and DARIAH (Agiatis Benardou (RC "Athena")). Finally, the third day of the workshop was dedicated to the VI-SEEM and its data management. More specifically, talks on the VI-SEEM Clowder, VI-SEEM Services, VI-SEEM Code Repository, VI-SEEM Simple Storage Service, VI-SEEM Data Repository, VI-SEEM Data Discovery Service and Persistent Identifiers in VI-SEEM were presented. This Workshop enabled VI-SEEM to test and identify the weaknesses of its created ontology for addressing the interoperability between the three research communities of Climate, Life Sciences and Digital Cultural Heritage.



Figure 47: VI-SEEM as well as SIMDAS presentation at the workshop

VI-SEEM NAT-GR LS+: 2018 NWChem Workshop", 10-11 September 2018, Athens, Greece

The training event aimed at introducing users to the widely used and highly scalable code, NWChem. NWChem is a computational quantum chemistry package for the studies of electronic structure, geometry and properties of molecules and periodic systems. It also includes classical and quantum (Carr-Parinello) molecular dynamics simulations. The package exhibits excellent parallel scaling and has been shown to run on hundreds of thousands of cores on top Supercomputing systems. NWChem is developed and maintained at EMSL, a US Department of Energy User Facility, located at Pacific Northwest National Laboratory. This workshop introduced new and experienced users of NWChem at quantum chemistry and classical molecular simulations techniques for the understanding of (bio)molecular structure. The workshop was a mix of morning lectures and afternoon hands-on tutorials where participants had the opportunity to explore the various capabilities as well as interact with NWChem developers. VI-SEEM was presented by Dr. Dimitris Dellis (GRNET) on 10 September and Dr. Zoe Cournia on 11 September, sharing with the participants the computing, storage, application level services and training activities of the project. <https://events.hpc.grnet.gr/event/78/timetable/#20180910>

4 VI-SEEM Innovation strategy and results

The VI-SEEM innovation strategy was developed based on the key strengths of the project partnership and of existing potential among the target scientific community groups in the region. The description of the strategy and its main actions were done in the deliverable D2.3. The innovation strategy was oriented towards innovative developments in the following key areas:

- The Virtual Research Environment as an integrated platform;
- Modules of the platform as generic services with broad applications;
- Services, tools and applications, serving specific needs of a target scientific community;
- New processes and models of usage of the infrastructure.

The knowledge and experience of the consortium to create services for various e-infrastructures such as HPC, Grid, Cloud, Storage, and the implementation of an innovative approach to integrating these components are crucial in execution of the VI-SEEM innovation strategy.

In the second project period actions were taken to further focus the innovative developments by leveraging the advantages of the VI-SEEM e-infrastructure. The distributed nature of the infrastructure naturally promotes collaboration in the developments of innovations. In order to fulfil the VI-SEEM innovation strategy, the following set of activities was planned (see deliverable D2.3):

- Create and update project innovation register;
- Involve scientists with potential for innovations in the project work;
- Discover innovation opportunities;
- Work with IT industry leaders;
- Follow up developments in open source licenses;
- Collaborate with other EU projects in innovation.

Here we report our work during the second project's period corresponding to this set of activities.

The project innovation register served as the main tool for centralized overseeing of the innovations, maintaining up-to-date information about the innovations and providing basis for marketing the innovations and for attracting possible users and stakeholders, as well as contributors. The Technical Board was mainly responsible for focusing the efforts and streamlining the marketing of the innovations. In Table 3 we have provided a list of all innovations involved in the innovation register. The blue ones (9 innovations) were developed during the first half of the project, and the green ones (5 innovations) were developed during the second project implementation period.

Nº	Name of service	Area of Impact	Developer, country	Short Description
1	VI-SEEM ACCOUNTING	Community, Operations	D. Dimitrov, IICT-BAS, Bulgaria	Easy single-page integrated dashboard of the accounting data and usage quotas for HPC, Cloud, and Storage Services
2	Virtual Research Environment (VRE) portal	Life sciences, Climatology and Digital Cultural Heritage communities	Andreas Athenodorou, Cyl, Cyprus	A unique, easy to use, Virtual Research Environment (VRE) portal for the southeast Europe and the Eastern Mediterranean region
3	Clowder for Digital Cultural Heritage	Scientific community of Digital Cultural Heritage	Panayiotis Charalambous, Cyl, Cyprus	A Content Management System for Digital Cultural resources. Data are processed, transformed and visualized based on data-type. Users can manage access to data
4	VI-SEEM Login service	Community, Operations	Nicolas Liampotis, GRNET, Greece	VI-SEEM Login service enables individual researchers to seamlessly and securely access VI-SEEM e-Infrastructure resources using federated authentication mechanisms
5	VI-SEEM Service Catalogue/ Portfolio	Community, Marketing	Anastas Mishev, UKIM, FYROM	VI-SEEM Service Catalogue is a customer facing list of services that are available within VI-SEEM VRE and provide value to the customers of the service providers. The Catalogue also provides different important information on each listed service
6	AFMM	Life Sciences community	Zoe Cournia, BRFAA, Greece	AFMM provides an automated platform with which the users can generate parameters for modeling small molecules with Molecular Dynamics simulations.
7	ChemBioServer	Life Sciences community	Zoe Cournia, BRFAA, Greece	ChemBioServer is a publicly available web-application for effectively mining and filtering chemical compounds used in drug discovery

8	Nano-Crystal	Life Sciences & materials design communities	Zoe Cournia, BRFAA, Greece	NANO-Crystal is a web-based tool, implemented for the construction of nanoparticles of a given radius.
9	Subtract	Life Sciences community	Zoe Cournia, BRFAA, Greece	Subtract is an online tool that can calculate the volume of a binding site found in a protein.
10	DroneMapper	DCH,LS, and Climate communities	Zarko Zecevic, UoM, Montenegro	DroneMapper is photogrammetry cloud application for automatic image mosaicking and georeferencing.
11	CH-CBIR	Cultural Heritage, Cross-platform	Vladimir Risojevic, UoBL, Bosnia and Herzegovina	Allows for automatic classification of aerial images. Can be integrated with other services also operating on aerial images.
12	DICOM	Life Sciences Applications, medical images archiving services, data access services	A. Golubev, M. Matenco, IEM, Moldova	"DICOM Network" collecting large datasets of medical images, based on distributed architecture. Provides possibility for data online processing and classification.
13	VirMuF	DCH scientific community	Mohammed Elfarargy, BA, Egypt	Easily construct virtual museums, no coding required.
14	VDDS: VI-SEEM Data Discovery Service	Data, Computing and LS, DCH and Climatology communities	Vladimir Dimitrov, IICT-BAS, Bulgaria	VDDS is based on a specially configured and upgraded version of the CKAN platform.

Table 3: List of innovations developments

The open calls that were undertaken by the project attracted significant interest from teams of scientists as well as industry and further increased the innovative potential of the project. Each of the partners was also performing local actions aimed at expanding the user base and attracting established scientists and young researchers with high potential. The calls attracted substantial interest and served also as a marketing tool for the already deployed innovations within the project.

Even the rejected applications served as feedback for missing features and opportunities for innovation that could remove the stumbling blocks before them. This analysis was performed jointly by the organizers of the calls and the Technical Board. A more general analysis of the bottlenecks observed during the project lifetime was performed and provided starting points for innovative developments that could resolve the issues. All partners contributed with their views and feedback from the communities of scientists that they had contacts with. As a result of the work on the innovation strategy the 12 research groups of scientists from 8 countries in the region were involved in innovation development covering the following areas of impact: operation, computing and data as well as LS, DCH and CL applications.

Contacts were established with key persons from development arms of big IT industry companies with presence in the region, and we presented project results and discussed possible joint work. The project partners were active participants in local and international events with industry involvement and were looking for contacts with leaders in the IT industry. Contacts were established with key persons from the big companies in the IT industry, when their local branches included research and development arms. This resulted in some fruitful collaborations and exposed project results in a wide setting. Several such collaborations resulted in either participation in the open calls or in other formally defined actions, for example joint participation in H2020 calls or in other calls, funded nationally or by industrial leaders. The funding from national programs is in some cases substantial and provides significant source of funds for development or even support of the infrastructure itself.

Project partners follow their national and institutional policies with regards to intellectual property and rights. The project supported the improved understanding of open-source licenses and their applicability for innovative developments achieved during the project lifetime. It was determined that open source licenses can help to promote innovation without impeding the protection of intellectual property and can foster further expansion of scope of innovations through contribution from external individuals, teams or institutions.

The innovation activities were always part of the informal discussions or formal agreements with other interrelated EU projects. During the project lifecycle MoUs were signed with other projects, and opportunities to present and participate in relevant conferences organized by partners from other EU projects were used productively.

One key aspect of the innovations in the project was that they covered the whole VI-SEEM infrastructure with its heterogeneity nature not only in terms of hardware, but also software configuration and management, taking into account also the geographical distribution. Although cloud providers tend to stress the advantages of their centralized management model, it is well known that their users tend to ensure reliability through the use of multiple providers. In VI-SEEM the providers are already distinct legal entities and rely on substantially different hardware and software, thus ensuring reliability and continuity.

Efforts were made to find and attract teams of talented researchers or SMEs with high potential in specific fields, that we envisage will be of bigger importance in the next years. Outreach actions were performed using classic and more innovative techniques with the goal to reach wider audience. Although social media is useful for such interactions, classic

media like TV was also used effectively. Some events mainly organized by the partners were used to show the innovations of the project and to seek synergies.

5 Marketing activities and results

The complementary actions that we have performed brought our dissemination activities to the next level of proactive marketing, aiming to make the services offered by VI-SEEM more attractive to the scientific communities. Here is a brief report of our activities:

- We have continued to support our leading scientists in presenting and publishing the work achieved by using VRE services at high-profile conferences in the domains of Cultural Heritage, Life Sciences and Climate. This resulted in total 78 published scientific papers (24 published in the first period and 54 papers are published during the second period) and 91 presentations at scientific conferences.
 - Among our activities we would like to outline (1) the work done for publishing of two special issues of two open access scientific journals with scientific publications resulting from VI-SEEM activities; and, (2) by organizing 46 scientific presentations (35 oral plus 11 posters) of VI-SEEM results at the project conference in Sofia, 15-16 May 2018 in the presence of participants from 27 countries, we created conditions for fruitful exchange of ideas in adjacent fields and for establishing longer-term interdisciplinary collaborations.
- We not only continued to regularly update the project web site to give visibility of project results, but aimed to do it in dynamic and attractive manner.
 - A new initiative during the reported period was the posting of the project success stories at the project web site <https://vi-seem.eu/success-stories/>. We started posting in January 2018 in the following way: each week one story was posted and a tweet was sent about it. Up to now we have 20 success stories at the project web site and the process of posting is continuing.
- The training material collection is regularly improved and access to it is simplified.
 - The training portal has been enhanced significantly during the reported period. The main pages of all training events have been linked to the training portal (<https://training.vi-seem.eu/>) in a consistent way. Also, training event-related materials section has been defined on the training portal so that users can easily find or refer back to materials that have been used on a given training event. Other improvements on the portal main page layout have been made to simplify the access to training materials on different topics.
- Promote technical documentation and porting guidelines to researchers of the region and beyond.
 - The project wiki pages are regularly updated. (See https://wiki.vi-seem.eu/index.php/Main_Page)
- Promote open calls for applications and access among the 3 target communities.

- Three open calls were organized during the reported period and they gained significant interest. The project calls are promoted through all channels (project and local websites, twitter, mailing lists, dissemination events, etc.)
- Ensure VI-SEEM presence (presentation, poster, brochures) at various scientific conferences to promote the scientific results.
 - Total of 37 VI-SEEM presentations at external conferences and total of 91 scientific presentations (see Annex 1, Annex 3 and Annex 4)
- Organize dissemination and training events with emphasis on VI-SEEM services of interest to target audience and possibilities of obtaining access to computing and storage infrastructure. These events are broadly advertised to the research institutions and academic staff.
 - During the reported period the project organized one regional conference, 9 national dissemination events, 4 regional training events and 7 national training events, all of them broadly advertised. Additionally, a number of seminar presentations / informal meetings etc., have been organized at universities, SMEs, and other interested parties.
- Organize presentations targeting academics and general public, emphasizing the importance of having a unified e-Infrastructure platform and its impact on scientific research, R&D, industry development and society in general under the VI-SEEM framework.
 - The list of VI-SEEM presentations at external events is given in Annex 1.
- Promote the VI-SEEM platform and results through local media targeting different audience.
 - Interviews and other TV appearances were organized, as well as printed interviews, radio and online media presence. See section 2.3.
- Encourage visits of students to the resource centres.
 - The student visits are listed in the table below.
- Establishing contacts with potential industrial users and SMEs and discussing their eventual needs and search for possibilities for future collaboration.
 - Each partner reported their contacts and discussions in the regular 3 months reports. In the table below some of these are listed.
- Establishing contacts and possible collaborations with other e-Infrastructure related projects.
 - The senior management personnel in the project were engaged in contacts with related e-Infrastructure projects. Joint events were organized with some of these projects and formal memoranda were also signed.

- Bring the activities of the VI-SEEM project to the attention of government and politicians and try to gain long-term support towards sustainability of national e-Infrastructures.
 - The regional dissemination event attracted high-profiled policy makers from the region. On the national level, each partner reported their contacts and discussions in the regular 3 months reports. In the table below some of these are listed.

We also present a table with marketing activities ordered in groups by target audience.

Target Audience	Main Actions	Implementing Date
User communities (scientific, R&D, industry and SMEs)	1.1 Organize one dissemination event at national level <i>This event is advertised to wide range of institutions, research groups or SMEs/industry through personal invitations, mailing lists, bulletin board, regular mail, etc.</i>	
	Partner: All partners	Date:
	<i>VI-SEEM national dissemination events are organized in each partner country. Below are listed the events during the reported period.</i>	<i>M19-M36</i>
	<i>High performance computing in function of business enhancement (IPB)</i>	<i>14-15 June 2018, Serbia</i>
	<i>VI-SEEM national dissemination event (NIIFI)</i>	<i>28 May 2018, Budapest</i>
	<i>Dissemination event aimed at representatives from the government (Ministry of Science and Technology; Ministry of Education and Culture) (UniBL)</i>	<i>27 April 2018, Banja Luka</i>
	<i>VI-SEEM National dissemination event: Hands on workshop on MD biomolecular simulations / modeling (GRNET)</i>	<i>24 April 2018, Athens, Greece</i>
	<i>VI-SEEM National Dissemination Event (UKIM)</i>	<i>18 October 2017, Skopje, FYROM</i>
	<i>VI-SEEM National Dissemination Event (BA)</i>	<i>28 September 2017, Alexandria, Egypt</i>
	<i>Second VI-SEEM national dissemination event collocated with SYNACS2017 Conference (UVT)</i>	<i>4 September, Timisoara, Romania</i>
	<i>Second VI-SEEM national dissemination event during VIII International Conference of the</i>	<i>4 September, 2017, Batumi, Georgia</i>

	Georgian Mathematical Union (GRENA)	
	National dissemination event in Albania (UPT)	13 April 2017, Tirana, Albania
	1.2 Investigate the possibility to offer resources to new scientific communities <i>The project opened calls for proposals, for access to VI-SEEM resources intended for scientists of the SEEM region in the fields of Cultural Heritage, Life Sciences and Climatology. We also will consider the option to help to new user communities.</i>	
	Partner: All partners	Date:
	2 nd VI-SEEM call for proposals <i>In total, 4 climate science, 7 life sciences, and 6 cultural heritage applications have been granted 3.5 million CPU-hours, 1.0 million GPU-hours, 0.1 million Xeon Phi-hours, 50,000 Grid CPU-hours, and 34 VMs.</i>	Open: 4th May 2017 Closed: 26th Jun 2017
	3 rd VI-SEEM call for proposals <i>In total, 6 climate science, 8 life sciences, 5 cultural heritage, and 3 cross-disciplinary applications have been granted 9.4 million CPU-hours, 0.2 million GPU-hours, 1 million Xeon Phi-hours, and 69 VMs</i>	Open: 12th Feb 2018 Closed: 26th Mar 2018
	VI-SEEM SME call <i>The partnership involving SMEs and research institutions, with the support of the VI-SEEM project, has been successfully established in Greece (2 running applications), Bulgaria (2 running applications), and Hungary (1 running application). For this purpose the project allocated in total 330,000 CPU core-hours, 6,500 GPU node-hours, 100,000 Xeon Phi core-hours, and 13 TB of storage space. Additionally, SMEs are granted access to the VI-SEEM-developed Simple storage service, Data analysis service, and life sciences service - Nanocrystal.</i>	Continuous open call
	1.3 Create a concise and effective way of description with all VI-SEEM services clearly listed and distribute it at dissemination events and electronically to existing VI-SEEM users and other interested parties	
	Partner: all partners	Date:
	VI-SEEM services catalogue and portfolio, link	October 2016 (initial

		<i>version), updated later</i>
	Distributed via national mailing lists	Feb 2018, Mar 2018, Apr 2018
General public	2.1 Publish a popular article about VI-SEEM results in a magazine or journal (printed or online edition)	
	Partner: All partners	Date:
	(UKIM), CNCADD - Conventional vs Novel Computer Assisted Drug Delivery, link	Oct 2017
	(IIUCC), Regional Climate Research on fruit splitting in Citrus, link	Jul 2018
	(IIUCC), National Training on Google Earth Engine (GEE) and Remote Sensing and Climate Applications, link	May 2018
	(IICT-BAS), TVRegCM - Tuning and Validation of the model RegCM for South-East Europe, link	Oct 2017
	(BA) VI-SEEM Digital Cultural Heritage (DCH) Regional Training Event, link	Mar 2018
	(BA), The BA High-Performance Computing (HPC) upgraded "C2" cluster and the VI-SEEM project, link	Jan 2018
	(BA), VirMuF – Virtual Museum Framework for Exhibiting Digitized Collections, link	Apr 2018
	(SESAME), Empowering Pilot-abstractions of SESAME Scientific Applications over Data-intensive Clouds and Cyber-infrastructure (SESAME, Tool&Services), link	June 2018
	(CYI), Climate-Atmospheric Chemical Kinetics on GPU Accelerators, link	Apr 2018
	(GRNET, BRF AA), VI-SEEM team ranks #1 in international computer-aided drug design competition, link	Mar 2018
	(IPB), DREAMCLIMATE dream team, link	May 2018
	(UPT), Parallel wind simulation speedup using OpenFOAM, link	Apr 2018
	(UNI BL), Using Convnets for Large-scale Scene Classification from High-resolution Remote Sensing Images, link	Mar 2018

	(UVT), Banatica Virtual Library: Making old prints widely available and machine processable, link	Oct 2017
	(RENAM), DICOM Network – Solution for Medical Images Archiving, Accessing, Processing and Visualization, link	May 2018
	(UOM), Verification of the synthesized molecules by molecular dynamic simulations, link	May 2018
	(IIAR-NAS-RA), WebplatformMD – An Integrated Web-based Interactive Data Platform For Molecular Dynamics Simulations, link	July 2018
	(UKIM), CNCADD - Conventional vs Novel Computer Assisted Drug Delivery, link	Oct 2017
	(GRENA), Precipitation bias in RegCM model simulations for South Caucasus Domain, link	Apr 2018
	(IPB) Published at the Facebook page Science Through Stories (Nauka kroz price) (21,000 followers)	Mar 2018
	(GRENA) Created database of researchers, IT and management staff of universities and distribution information concerning VI-SEEM services using e-mail, this proved to be most effective solution in our case.	June 2017
	(GRENA) According to the agreement with Georgian National Science Foundation selected information about VI-SEEM services and events is posted on their website: link .	July 2017
	2.2 VI-SEEM presence possibilities in a "popular science" events targeting schools and general wide public such as science fair, science competitions and science festival will be explored	
	Partner:	Date: project duration
	(GRENA) took part in the opening of a new type of innovation center - Startup Factory, which was hosted by the University of Georgia. It will support students and every interested individual to develop their ideas into successful business. The investment fund is already created in University of Georgia to support startup projects. Link	October 10, 2017
	(Cyl) "PRACE and VI-SEEM Projects – Serving	17 th to 30 th of April 2017

	<i>Computational Science needs", 2nd Mediterranean Science Festival, Limassol,</i>	
	<i>(Cyl) "The VI-SEEM Project: Servicing Computational Science needs and Digital Cultural Heritage", Researcher's Night, Nicosia</i>	<i>29th of September 2017</i>
	<i>(Cyl, GRNET, BRFAA) "VI-SEEM and PRACE European Supercomputing Infrastructures", The Athens Science Festival</i>	<i>25th to 29th of April 2018.</i>
	<i>(Cyl) European e-Infrastructure projects: speeding up Digital Cultural Heritage!, Researcher's Night, Limassol</i>	<i>September 2018</i>
Students and academic staff	3.1 Organize presentations of the VI-SEEM integrated platform and results to local universities <i>These presentations can be part of lectures or seminars at local universities, or independent presentation at universities.</i>	
	Partner:	Date:
	<i>(IPB) VI-SEEM project presented at the Astronomical Observatory Belgrade</i>	<i>Mar 2018</i>
	<i>(IPB) VI-SEEM project presented at the Faculty of Physical Chemistry, University of Belgrade</i>	<i>Apr 2018</i>
	<i>UNIBL organized a training named "Structure from Motion Reconstruction and Digital Cultural Heritage" for the students of the final year of Faculty of Electrical engineering.</i>	<i>21 May 2018.</i>
	<i>UNIBL organized a dissemination event at the Faculty of Philosophy (History department)</i>	<i>11 January 2018</i>
	<i>(UKIM) Presentation of the VI-SEEM services to the students at FCSE, UKIM</i>	<i>October 2017</i>
	<i>(IICT) VI-SEEM project presentation for students from Faculty of Mathematics and Informatics, Sofia University</i>	<i>15 March 2018</i>
	<i>(IICT-BAS) VI-SEEM project presentation for students from Department of Informatics at the University of Food Technologies (Plovdiv)</i>	<i>4 April, 2018</i>
	3.2 Organize a short resource centre tour for a group of students	
	Partner:	Date: project duration
	<i>(IPB) Two tours for a group of students from Banja Luka were organized</i>	<i>May 2018</i>

ustr y, SM Es and	(GRENA) Students of Tbilisi State University and Network Academy visited GRENA data center GE-01-GRENA GRID and VM infrastructure.	June 15, 2017 February 16, 2018 June 21, 2018
	(UKIM) Regular tours for the students of FCSE, once per semester	April 2017 November 2017 April 2018
	(UKIM) Tour to the HPC data centre for the high school students on the University and Faculty Open Day	06 May 2017 05 May 2018 12 May 2018
	(IICT-BAS) A tour for a group of students from FMI, Sofia University	15 March 2018
	(IICT-BAS) A tour for a group of students from Department of Informatics at the University of Food Technologies was organized at the HPC Data center at IICT.	4 April 2018
	Cy-Tera tour, Kykkos High School	1/3/2018
	Cy-Tera tour, Megara High School	12/2/2018
	Cy-Tera tour, Idalio High School	14/2/2018
	Cy-Tera tour, Pascal Private School	23/2/2018
	Cy-Tera tour, Technical School of Agios Lazaros	22/3/2018
	Cy-Tera tour, Aradipou High School	30/3/2018
	Cy-Tera tour, Kokkinotrimithias High School	23/3/2018
	Cy-Tera tour, Latsia High School	7/12/2017
	3.3 Offering an internship position(s) at local resource centres to a student in suitable field	
	Partner: All partners	Date:
	(IICT-BAS) Signed program for internship positions between IICT-BAS and Sofia University and Technical University - Sofia	October 2017
	(GRENA) Internship was offered to students of the Georgian Technical University. After accomplishment of 3 months internship I. Niazashvili was hired by GRENA.	January 2018
	4.1. Present VI-SEEM services and benefits of VRE usage for R&D, industry and SMEs at related events	

Partner: All partners		Date:
<i>(IICT-BAS) Dr. Emanouil Atanasov presented the VI-SEEM services and functional features of the supercomputers to investors and start-ups, place: Bulgarian Chamber of Commerce and Industry, Sofia, Bulgaria.</i>		<i>7 Sept 2018</i>
<i>(IPB) Dr. Aleksandar Bogojevic, presented the VI-SEEM virtual research environment and the VI-SEEM SME call at the SEE Automotive conference.</i>		<i>April 2018</i>
<i>(IICT-BAS) Dr. Emanouil Atanasov presented the VI-SEEM SME call during the F2F meeting with three SMEs</i>		<i>22 January, 2018 19 February, 2018 28 March 2018</i>
<i>(IICT-BAS) Prof. Margenov presented during an extended meeting on the board of the Bulgarian Branch Chamber – Machine Building with companies which are not members of the Chamber, Dryanovo, Bulgaria, the national HPC infrastructure (as a part of VI-SEEM infrastructure) and how it benefits SMEs.</i>		<i>2 April 2018</i>
<i>(IICT-BAS) Prof. Margenov presented VI-SEEM infrastructure and participation of the institute of building it during the Conference "Industry 4.0 – Challenges and Consequences for the Economic and Social Development of the Bulgaria", Park Hotel Moskow, Bulgaria</i>		<i>12 April 2018</i>
<i>(UniBL) Presentation at Center for entrepreneurship and technology transfer</i>		<i>10 July 2018</i>
<i>(UKIM) VI-SEEM presentation at:</i> <ul style="list-style-type: none"> <i>2nd DI4R conference, Brussels</i> <i>HPC for SME Collaboration in Macedonia, workshop within the SESAM</i> 		<i>29 Nov – 01 Dec 2017 9 May 2017</i>
4.2 Explore and specify other possibilities of reaching out to SMEs, industry, NGOs and establishing contacts		
Partner:		Date: project duration
<i>(Cyl) Dr. Andreas Athenodorou contacted the ARTOs Foundation (an NGO). Through this contact cooperation was created with a number of common actions. This brought together VI-SEEM and MAPS program (ARTOs foundation is a partner) the purpose of which is the 3D</i>		<i>Mart-June 2018</i>

	<i>documentation of nonuments, in other words hidden, erased, unwanted and otherwise forgotten monuments and built structures, are part of European Cultural Heritage. Subsequently it was agreed that MAPS project will be using the VI-SEEM Clowder as the main storage repository and dissemination tool for their actions.</i>	
	<i>IPB organized an SME-oriented dissemination event at the Science Technology Park Belgrade in June 2018.</i>	<i>June 2018</i>
	<i>(UniBL) Established contact with local region development agency (CIDEA)</i>	<i>10 July 2018</i>
	<i>(GRENA) Significant part of existing in Georgia online media (26 organizations) are using GRENA computational and storage resources. This is connected to the fact that GRENA provides high reliability and qualified technical support. Providing this service is important for GRENA in terms of sustainability and publicity.</i>	<i>2017-2018</i>
	<i>(IICT) Presentation of the VI-SEEM infrastructure and services and meetings and preparation to apply for the SME call for various BG companies (as a result two companies applied)</i>	<i>March – June 2018</i>
	<i>(UKIM) Presentation of the VI-SEEM infrastructure and services and meetings and preparation to apply for the SME call at the Alkaloid pharmaceutical company</i>	<i>March – June 2018</i>

Table 4: Marketing Activities

6 Conclusions

In this deliverable, we have presented the second report on dissemination, training and marketing activities based on the adaptation of the initial dissemination, marketing and training plans according to the needs of targeted scientific communities and according to the reviewers' recommendations. The project outreach has diversified in terms of audience, reaching out the school students, universities, wide research community, SMEs and industry, and the highest level of policy making environment.

During the second project period 1 regional and 9 national dissemination events were organized by the project and they attracted more than 600 participants. Participation in science fairs and similar large events has further extended the outreach to many thousands. More than 300 users were trained during the 11 training events (4 regional, 7 national). Both training and dissemination events were widely advertised. Apart from the events organized by VI-SEEM, the project was presented at 37 related external events, and its scientific results were presented in 91 slots. Project was presented at local universities with dedicated lectures and tours. During the period, 54 scientific publications were published.

Media activities (including Twitter and LinkedIn) and involvement in the popular scientific events were intensified during the second period in order to reach wide audience (general public, academia, SMEs etc.). VI-SEEM activities and results have made appearance in 21 newspaper articles and TV shows across 8 countries. The project also took part in large-scale popular scientific events targeting general public, where the partners presented the project and opened the doors of their centres to the visitors.

VI-SEEM partners have established contacts with local industry and SMEs, presented the VI-SEEM project mission and activities, and established collaborations. The established contacts with local media, academia, industry, SMEs and other organizations should continue to be used for promoting the project platform and its importance for scientific research and technology advances.

To summarize, we present the WP2 metrics.

Dissemination KPI:

- Planned: 1 large regional and 16 country-level dissemination events organized by the project with total of 1000 persons targeted;
 - *Implementation:* 1 large regional and 18 country-level events organized with more than 1200 participants.
- Planned: Project expected to be presented at minimum 50 external events;
 - *Implementation:* VI-SEEM presented at 63 events (26 external events during the first project period and 37 external events during second period).
- Planned: 70 publications in project lifetime, and 30 afterwards;
 - *Implementation:* 78 publications in project lifetime.

Training KPI:

- Planned: 12 training events (4 regional and 8 national) organized by the project;
 - *Implementation*: 22 training events (7 regional, 15 national) organized.

Annex 1 List of events with VI-SEEM participation

Nº	VI-SEEM partner	Event title/ Conference/ Workshop	Place/Date	VI-SEEM representation (talk, materials, booth, discussions, etc.)	Audience	Events' links
1	IICT	23 Int. Conference on Computing in High Energy and Nuclear Physics (CHEP 2018), 9 July 2018, Sofia, Bulgaria	Sofia, Bulgaria, 9 July 2018	VI-SEEM plenary talk, brochures	~ 500 participants: researchers	Link Link
2	IICT	Webit.Festival Europe	Bulgaria, Sofia, Arena Armeec, 26-27 June 2018	VI-SEEM materials, discussions with industrial representatives	~ 3000 participants: SMEs representatives, researchers, official governmental representatives, students	Link
3	IPB	OpenMultiMed Workshop	Belgrade, Serbia, 18-19 Jun 2018	VI-SEEM presentations, brochures	50 LS researchers	Link
4	IPB	High Performance Computing in function of business enhancement	Belgrade, Serbia, 14-15 Jun 2018	VI-SEEM presentations, brochures	30 researchers and SMEs representatives	Link
5	GRENA	EuroDIG 2018 – “The Pan-European dialogue on Internet governance”	Tbilisi, Georgia 5-6 June 2018	Moderating session, discussions	More than 500 participants including participants from European and EaP countries and European Structures	Link
6	GRENA	GRENA Seminar presentation at JINR	Joint Institute for Nuclear Research, Dubna, Russia 23 May 2018	Presentation of VI-SEEM	40, administration of the institute, researchers	
7	UniBL	"Smart Sensor	Banja Luka, 22 May	VI-SEEM and CH CBIR	40 participants	Link

		Networks - Research and Applications"	2018	presentations, posters, brochures		
8	IICT	International Conference "e-Infrastructures for excellent science in Southeast Europe and the Eastern Mediterranean"	Bulgaria, Sofia, 15-16 May 2018	VI-SEEM presentations, posters, brochures	More than 120 researchers, EU representatives, stakeholders	Link Link
9	GRNET	Athens Science Festival	Greece, Athens, 25-29 April 2018	VI-SEEM interactive scientific applications	~ 500	Link
10	IICT	"The 3rd Annual Seminar of the Disaster Risk Management Knowledge Centre", in the calendar of the Bulgarian presidency	Bulgaria, Sofia, 26-27 April 2018	VI-SEEM brochures	100, scientific groups, policy makers, practitioners and relevant stakeholders	Link1 Link2
11	IICT	Sofia Digital Forum "Shaping Europe's Digital Future: HPC for Extreme Scale Scientific and Industrial Applications"	Bulgaria, Sofia, 19 April 2018	VI-SEEM materials, panel discussion	300, researchers, high-level officials, policy makers, stakeholders	Link
12	IPB	SEE Automotive conference	Novi Sad, Serbia, 17-18 Apr 2018	VI-SEEM presentations, brochures	250 participants from more than 150 SEE companies	Link
13	Cyl	Biennial of Restoration, BRAUIV, organised by CICOP Italia, and ICOMOS, Cyprus	Nicosia, Cyprus, 15-17 April 2018	VI-SEEM DataCrowds application presented	90 participants	Link
14	UniBL	Virtual Heritage Network Ireland Conference	11-13 April 2018, in Dublin, Ireland (Hosted by the School	Joint presentation of VI-SEEM and ARKWORK projects	~ 60	

			of Information & Communication Studies, UCD)			
15	IICT	Seminar presentation for Students from Department of Informatics at University of Food Technologies	Bulgaria, Sofia, 3 April 2018	VI-SEEM presentation, brochures	35 students	Link
16	IICT	Forum: Future Digital Society Resilience in the New Digital Age	Bulgaria, Sofia, IICT premises, 30 March – 2 April, 2018	VI-SEEM presentation	50 researchers and SMEs representatives	Link
17	IPB	14 th <i>International Particle Physics Masterclasses</i> events organized in Serbia	The first event took place at the Faculty of Sciences, University of Novi Sad on 26 th March 2018, and the second at the Faculty of Physics, University of Belgrade on the same day	VI-SEEM infrastructure, services, and virtual research communities are presented	50 students	Link
18	IICT	The Bulgarian Presidency Flagship Conference "Research Infrastructures beyond 2020 – sustainable and effective ecosystem for science and society"	Bulgaria, Sofia, 22-23 March, 2018	VI-SEEM was presented in conference exhibition by a booth with videos, posters, brochures, etc.	300, high level officials from EC and MS/AC, policy makers, scientists, RIs stakeholders, etc.	Link1 Link2 Link3
19	SESAME	15th SESAME User's Meeting	Jordan, Amman, 18-19 Dec, 2017	VI-SEEM presentation	150 participants	Link
20	IICT	"Two years of AVITOHOL: Advanced HPC applications"	Bulgaria, Panagyurishte, 28-31 October 2017	VI-SEEM presentation, brochures	40 participants, among them five distinguished scientists from	Link

					Germany, Hungary, Macedonia, Armenia and Albania	
21	RENAM	RENAM Users' Conference 2017	Moldova, Technical University of Moldova, 20 October 2017	VI-SEEM presentation	36 participants: Students, Researchers, Medical Organizations representatives	Link
22	UKIM	Dissemination event	FYROM, Skopje, 18 October 2017	VI-SEEM presentations	35 participants: researchers, students, public institutions representatives	Link
23	UoM	Montenegrin open science days	Podgorica, FNS UoM, 11 October 2017	VI-SEEM project and research results presentations	More than 50 participants: researchers, students, public institutions representatives	Link
24	IICT	Exhibition and presentation of IICT for scientists and general public	Bulgaria, Sofia, 5 October 2017	VI-SEEM was presented in the conference exhibition by a booth with videos, posters, brochures, etc.	150 participants, scientists, students, general public	Link
25	CyI	Cyprus Researchers' Night	Cyprus, Nicosia, Cyprus Expo, 29 September 2017	Interactive demonstration "The VI-SEEM Project: Servicing Computational Science needs and Digital Cultural Heritage"	40 participants	Link
26	IICT	Scientific seminar at the Laboratory "Siberian, Supercomputing Centre", Novosibirsk	Novosibirsk, Russia, Institute of Applied Mathematics premises, 14 September 2017	VI-SEEM presentation, brochures	45 researchers and resource providers	Link
27	GRENA	VIII International Conference of the Georgian Mathematical Union	Georgia, Batumi, 4-8 September 2017	VI-SEEM presentations	Approx. 120 participants: researchers, students, public institutions representatives	Link

28	SESAME, Cyl	TAIEX Workshop on GEANT H2020 and European Synchrotron Sources, Jordan, 64406	Jordan, Amman, 12-13 August 2017	VI-SEEM project presentation	100 researchers	Link
29	UKIM	"E-INFRASTRUCTURE FOR SCIENTIFIC EXCELLENCE", IEEE EUROCON 2017	FYROM, Ohrid, 6-8 July 2017	VI-SEEM Presentation, Special session with VI-SEEM related research (7 presentations)	Approx. 90 participants: scientists	Link
30	IICT	The 11th International Conference on Large-Scale Scientific Computations (LSSC'17)	Bulgaria, Sozopol, 5-9 June 2017	VI-SEEM Presentation, brochures, Special session; "HPC and BigData: Algorithms and Applications" with VI-SEEM related research (5 presentations)	Approx. 120 researchers	Link
31	RENAM	Workshop devoted to research works in the area of scientific computing in Moldova organized by the Institute of Mathematics and Computer Sciences of ASM	Chisinau, IMSC premises, 17 May 2017	VI-SEEM presentation	22 participants: researchers, students	Link
32	SESAME	Ninth SESAME Jordan National Committee (JNC) meeting	Jordan University of Science & Technology (J.U.S.T.), Irbid, Jordan on the 3 rd of May 2017	VI-SEEM presentation	25 participants	link
33	Cyl	Mediterranean Science Festival 2017	Cyprus, Limassol, 27-30 April 2017	VI-SEEM brochures, interactive project presentation	Estimated visitors ~ 5000	Link
34	IICT	WEBIT.FESTIVAL EUROPE	Bulgaria, Sofia, 25-26 April 2017	VI-SEEM Brochures, Discussing possibilities for VI-SEEM	Estimated participants: more than 3000	Link Link

				platform use by the SMEs and Startups		
35	IICT	Seminar presentation for students from the Department of Informatics at University of Food Technologies	Bulgaria, Sofia, IICT premises, 4 April 2017	VI-SEEM presentation, brochures	Audience: 35 students	Link
36	IPB	Presentation at the InnoHPC (High-performance computing for effective innovation in the Danube region)	Serbia, Kragujevac, 26 April 2017	VI-SEEM presentation (project, infrastructure and developed services)	60 participants	Link
37	NIIF	Annual user community conference, organized by the Hungarnet Association, KIFU	University of Szeged, Szeged, 21 April 2017	VI-SEEM presentation and materials	40 participants	Link

Annex 2 List of Scientific Publications

VI-SEEM Research-oriented papers

Nº	Authors	Title	Publications	Links
1	H. Astsatryan, H. Grigoryan, E. Gyulgyulyan, A. Hakobyan, A. Kocharyan, W. Narsisian, V. Sahakyan, Yu. Shoukourian, R. Abrahamyan, Z. Petrosyan, J. Aligon	"Weather data visualization and analytical platform"	SCPE, Vol 19, No. 2, 2018 , pp. 79-86, DOI: 10.12694/scpe.v19i2.1351	Link
2	H. Astsatryan, W. Narsisian, E. Gyulgyulyan, A. Poghosyan, Y. Mamasakhlisov	"An integrated web-based interactive data platform for molecular dynamics simulations"	SCPE, Vol 19, No. 2, 2018 , pp. 131-138, DOI: 10.12694/scpe.v19i2.1337	Link
3	A.H. Poghosyan, A.A. Shahinyan, J. Koetz	"Catanionic AOT/BDAC micelles on gold {111} surfaces"	Colloid and Polymer Science, pp. 1-6, 2018 , DOI: 10.1007/s00396-018-4348-1.	Link
4	E. Atanassov, T. Gurov, M. Durchova, S. Ivanovska, A. Karaivanova	"Study of Scalability and Energy Efficiency of QMC Algorithm on Hybrid HPC Systems"	Proceedings of Int. Conf. "Numerical methods for Scientific Computations and Advanced Applications" (NMSCAA'18), pp. 6-9, 2018	Link
5	V. Petrovska Jovanovska	Development and Formulation Optimisation of Modified Release Dosage Form Using Quality by Design – QbD Approach	PhD Thesis extended abstract, available at the VI-SEEM Repository, 15 June, 2018	Link
6	G. Artopoulos, R. Charalambous	"Crowd Simulation for Virtual Environments in Urban Modeling"	in F. Angelucci (Ed), Smartness e Healthiness per la transizione verso la resilienza. Orizzonti di ricerca interdisciplinare sulla città e il	Link

			territorio, BETHA – Built Environment Technologies and Healthy Architectures Series, Architettura e Innovazione, 86.1.4 (IT: FrancoAngeli Publisher), pp.289-306. 2018, ISBN: 978-88-917-6087-6	
7	M. Bigovic, L. Filipovic, Z. Zacevic, B. Krstajic	"Modeling and Molecular Dynamics Simulations Study of Enol-Carbonates and Their Derivatives"	SCPE, Vol 19, No. 2, 2018 , pp. 139-148, DOI: 10.12694/scpe.v19i2.1353	Link
8	P. Charalambous, G. Artopoulos (CASTORP)	"Enabling virtual collaboration in Digital Cultural Heritage in the SEEM region"	SCPE, Vol 19, No. 2, 2018 , pp. 161-174, DOI: 10.12694/scpe.v19i2.1348	Link
9	T. Davitashvili, N. Kutaladze, R. Kvatadze, G. Mikuchadze	"Effect of dust aerosols in forming the regional climate of Georgia"	SCPE, Vol 19, No. 2, 2018 , pp. 87-96, DOI: 10.12694/scpe.v19i2.1398	Link
10	M. Elfarargy, Amr Rizq	"VrMuF: The Virtual museum framework"	SCPE, Vol 19, No. 2, 2018 , pp. 175-180, DOI: 10.12694/scpe.v19i2.1349	Link
11	N. Frasherli, E. Atanassov	"An Analysis for Parallel Wind Simulation Speedup using OpenFOAM"	SCPE, Vol 19, No. 2, 2018 , pp. 97-105, DOI: 10.12694/scpe.v19i2.1342	Link
12	G. Gadzhev, I. Georgieva, K. Ganev, V. Ivanov, N. Miloshev, H. Chervenkov, D. Syrakov	"Climate applications in a virtual research environment platform"	SCPE, Vol 19, No. 2, 2018 , pp. 107-118, DOI: 10.12694/scpe.v19i2.1347	Link
13	G. Gadzhev, V. Ivanov, K. Ganev, H. Chervenkov	"TVRegCM Numerical Simulations – Preliminary Results"	LNCS, Vol. 10655, 2018 , pp. 266-274, DOI: 10.1007/978-3-319-73441-5_28	Link
14	I. Georgieva, G. Gadzhev, K. Ganev, N. Miloshev	Computer Simulations of Atmospheric Composition in Urban Areas. Some Results for the City of Sofia	LNCS, Vol. 10665, pp. 474-482, 2018, DOI: 10.1007/978-3-319-73441-5_52	Link

15	B. Koteska, V. Manevska, A. Mishev, L. Pejov	"Dynamic versus static approach to theoretical anharmonic vibrational spectroscopy of molecular species relevant to atmospheric chemistry"	SCPE, Vol 19, No. 2, 2018 , pp. 119-130, DOI: 10.12694/scpe.v19i2.1352	Link
16	B. Koteska, M. Simonoska, M. Glavas Dodov, J. Tonic Ribarska, L. Pejov	„Semi empirical Atom-centered Density Matrix Propagation Approach to Temperature-dependent Vibrational Spectroscopy of Irinotecan"	SCPE, Vol 19, No. 2, 2018 , pp.149-159, DOI: 10.12694/scpe.v19i2.1344	Link
17	Bojana Koteska	Framework for Developing Scientific Applications	PhD Thesis extended abstract, available at the VI-SEEM Repository, 3 April, 2018	Link
18	A.H. Poghosyan, A.A. Shahinyan, J. Koetz	Self-assembled monolayer formation of distorted cylindrical AOT Micelles on Gold Surfaces	Colloids and Surfaces A: Physicochemical and Engineering Aspects, 6 March, 2018 , DOI: 10.1016/j.colsurfa.2018.02.067	Link
19	Savić, Marijana Arapović, Mihajlo Savić, Adriana Arbutina, Mirjana Umićević Davidović, and Vladan Mirjanić	"A SYSTEM FOR MEASUREMENTS OF 3D SCANNED ORTHODONTIC STUDY MODELS."	CONTEMPORARY MATERIALS 2, no. 8 (2018): pp. 172-179.	Link
20	Ioanna Tremi, Dimitrios Anagnostopoulos, Ellas Spyratou, Paraskevi Gkeka, Alexandros G. Georgakilas, Chrysostomos Chatgililoglu, Zoe Cournia	Effect of 5-trans isomer of arachidonic acid on model liposomal membranes studied by a combined simulation and experimental approach	Journal of Membrane Biology, 2018 , pp. 1-15, DOI: 10.1007/s00232-018-0029-8	Link
21	M. Alvanos, T. Christoudias	GPU-accelerated atmospheric chemical kinetics in the ECHAM/MESSy (EMAC) Earth system model (version 2.52)	Geosci. Model Dev., 10, 3679-3693, 2017 , DOI: 10.5194/gmd-10-3679-2017	Link

22	M. Alvanos, T. Christoudias	MEDINA: MECCA Development in Accelerators – KPP Fortran to CUDA source-to-source Pre-processor	Journal of Open Research Software. 5(1), p.13, 2017 , DOI: 10.5334/jors.158	Link
23	C. Athanasiou, S. Vasilakaki, D. Dellis, Z. Cournia	Using physics-based pose predictions and free energy perturbation calculations to predict binding poses and relative binding affinities for FXR ligands in the D3R Grand Challenge 2	J Comput. Aided Mol Des (2017): 1-24	Link
24	Z. Cournia, B. Allen, W. Sherman	Relative Binding Free Energy Calculations in Drug Discovery: Recent Advances and Practical Considerations	J Chem Inf Model 2017 , 57(12):2911-2937	Link
25	A. Golubev, P. Bogatencov, N. Iliuha	"DICOM Network" services - DICOM data exchange solution integrated in the regional VI-SEEM infrastructure	IEEE EUROCON 2017 - 17th International Conference on Smart Technologies, 6-8 July 2017, Ohrid, Macedonia, 2017 , pp. 558 – 563, DOI: 10.1109/EUROCON.2017.8011174	Link
26	A. Golubev, P. Bogatenvov, G. Secrieru	Study Big Data storage, transmission and processing in DICOM format for medical information systems	9th International Conference on Microelectronics and Computer Science, Chisinau, Republic of Moldova, October 19-21, 2017 (in Russian)	Link
27	N. Ivanova, A. Ivanova	"Testing the limits of model membrane simulations-bilayer composition and pressure scaling"	J. Comput. Chem. (2018), 39(8), pp. 387-396, DOI: 10.1002/jcc.25117	Link
28	D. Vudragović, P. Jovanović, A.	VI-SEEM Virtual Research	The 10th RO-LCG Conference Book of Abstracts, pp. 22 - 23, ISBN: 978-	Link

	Balaž	Environment	973-0-25620-8, Sinaia, Romania, 26-28 Oct 2017	
29	Miljan Bigovic, Zarko Zecevic, Luka Filipovic, Bozo Krstajic	"Verification of the three-dimensional structure of synthesized molecule by molecular dynamic simulations"	EUROCON 2017: 944-948, 2016	Link
30	H. Chervenkov, V. Ivanov, G. Gadzhev, K. Ganev	Sensitivity Study of Different RegCM4.4 Model Set-Ups – Recent Results from the TVRegCM Experiment	CIT, Volume 17, No 5 Special Issue, pp. 17-26, 2017 , DOI: 10.1515/cait-2017-0051	Link
31	N. Frasheri, E. Atanassov	Scalability Issues for Wind Simulation Using OpenFOAM	CIT, Volume 17, No 5 Special Issue, pp.27-36, 2017 , DOI: 10.1515/cait-2017-0052	Link
32	A. Geissler, I. Vasic and W. Hofstetter	"Condensation Versus Long-range Interaction: Competing Quantum Phases in Bosonic Optical Lattice Systems at Near-resonant Rydberg Dressing"	Phys. Rev. A 95 (2017) 063608	Link
33	I. Georgieva, G. Gadzhev, K. Ganev, D. Melas, T. Wang	High Performance Computing Simulations of the Atmospheric Composition in Bulgaria and the City of Sofia	CIT, Volume 17, No 5 Special Issue, pp. 37-48, 2017 , DOI: 10.1515/cait-2017-0053	Link
34	V. Jankovic and N. Vukmirovic	"Identification of Ultrafast Photophysical Pathways in Photoexcited Organic Heterojunctions"	J. Phys. Chem. C 121 (2017) 19602	Link
35	I. Loncarevic, Lj. Budinski-Petkovic, D. Dujak, A. Karac, Z. M. Jaksic and S. B. Vrhovac	"The Study of Percolation with the Presence of Extended Impurities"	J. Stat. Mech.-Theory Exp. 2017 (2017) 093202	Link
36	B. Koteska and A. Mishev and M. G.	Modeling the solid-state	Proceedings of IEEE EUROCON 2017 -	Link

	Dodov and M. S. Crcarevska and J. T. Ribarska and V. P. Jovanovska and M. Stojanovska and L. Pejov	vibrational spectroscopic properties of morphine-based formulations with hybrid meta density functional theory	17th International Conference on Smart Technologies, 2017, pp 938-943,	
37	B. Koteska and A. Mishev and L. Pejov	Computational approach towards vibrational spectroscopic detection of molecular species relevant to atmospheric chemistry and climate science: The formic acid rotamers	IEEE EUROCON 2017 -17th International Conference on Smart Technologies, pp 926-931	Link
38	Ratko Pilipović and Vladimir Risojević	"Evaluation of Convnets for Large-Scale Scene Classification From High-Resolution Remote Sensing Images"	Proc. 17th IEEE International Conference on Smart Technologies IEEE EUROCON 2017, Ohrid, Macedonia, pp.955-960, July 2017	Link
39	A. Poghosyan, H. Astsatryan, W. Narsisian, Y. Mamasakhlisov	On the Performance and Energy Consumption of Molecular Dynamics Applications for Heterogeneous CPU-GPU Platforms Based on Gromacs	CIT, Volume 17, No 5 Special Issue, pp. 68-80, 2017 , DOI: 10.1515/cait-2017-0056	Link
40	E. Atanassov, T. Gurov, A. Karaivanova, S. Ivanovska, M. Durchova and D. Dimitrov	On the Parallelization Approaches for Intel MIC Architecture	Citation: AIP Conf. Proc. 1773, 070001 (2016)	Link
41	E. Atanassov, A.Karaivanova, T. Gurov	"Services And Infrastructure For Virtual Research Environments - For Use By Science And Business"	International Scientific Journal Industry 4.0, Issue 2, 2016 , pp. 110-113, Published by Sci Tech Union of Mechanical Engineering, ISSN: 2543-8582	Link
42	T. Christoudias, M. Alvanos	Accelerated chemical kinetics in the EMAC chemistry-climate model	In Proceedings of HPCS 2016	Link

43	T. Davitashvili, N. Kotaladze, R. Kvatadze, G. Mikuchadze, Z. Modebadze, I. Samkharadze	Precipitations Prediction by Different Physics of WRF Model	International Journal of Environmental Science Volume 1, 2016 , pp 294-299	Link
44	A. Golubev, P. Bogatencov, G. Secrieru	Updating DICOM Network Architecture for its Integration at International Level. Networking in Education and Research	15th RoEduNet IEEE International Conference, Bucharest, Romania, 7-9 September 2016 , pp. 161-166. ISSN 2068-1038	Link
45	Bojana Koteska, Anastas Mishev, Ljupco Pejov, Maja Simonoska Crcarevska, Jasmina Tonic Ribarska, and Marija Glavas Dodov	"Computational Vibrational Spectroscopy of Hydrophilic Drug Irinotecan"	SIMUL 2016 Conference, Rome, Italy, August 21-25, 2016, pp. 11-16, ISBN 978-1-61208-501-2	Link
46	Anastas Mishev	"Bridging the computer and life sciences: the case of VI-SEEM"	Macedonian pharmaceutical bulletin, short communications from the Sixth Congress of Pharmacy in Macedonia with International participation, 62 (suppl) 27 - 29 (2016) ISSN 1409 - 8695 UDC: 004.7	Link
47	S. Nikolova, D. Toneva, I. Georgiev, Y. Yordanov, N. Lazarov	"Two cases of large bregmatic bone along with a persistent metopic suture from necropoles on the northern Black Sea coast of Bulgaria"	Anthropological Science, vol. 124 (2) (2016), pp. 145-153	Link
48	A.H. Poghosyan, L.H. Arsenyan, A.A. Shahinyan, J. Koetz	Polyethyleneimine Loaded Inverse SDS Micelle in Pentanol/Toluene Media	Colloids and Surfaces A: Physicochemical and Engineering Aspects. 506 (2016), 402-408	Link
49	Vladimir Risojević	"Analysis of Learned Features for Remote Sensing Image Classification"	Proc. 13th Symposium on Neural Network Applications in Electrical Engineering NEUREL 2016, Belgrade, Serbia, pp. 151-156, November 2016	Link

50	S. Stoykov, E. Atanassov, and S. Margenov	Efficient sparse matrix-matrix multiplication for computing periodic responses by shooting method on Intel Xeon Phi	Citation: AIP Conference Proceedings 1773, 110012 (2016)	Link
51	Hrachya Astsatryan, Zaruhi Petrosyan, Rita Abrahamyan, Anna Shahnazaryan, Vladimir Sahakyan, Yuri Shoukourian, Hamlet Melkonyan, Vassiliki Kotroni	WRF-ARW Model for the Prediction of High Temperatures in South and South East Regions of Armenia	11th IEEE eScience Conference, Munich, Germany, 2015 , pp. 207-113, DOI 10.1109/eScience.2015.82.	Link

VI-SEEM Service-oriented papers

Nº	Authors	Title	Publications	Links
1	V. Dimitrov, S. Stoyanov	"Solutions for data discovery service in a virtual research environment"	SCPE, Vol 19, No. 2, 2018 , pp. 181-187, DOI: 10.12694/scpe.v19i2.1350	Link
2	A. Golubev, P. Bogatencov, G. Secrieru	"DICOM data processing optimization in medical information systems"	SCPE, Vol 19, No. 2, 2018 , pp. 189-201, DOI: 10.12694/scpe.v19i2.1399	Link
3	Bojana Koteska, Anastas Mishev, and Ljupco Pejov	Quantitative Measurement of Scientific Software Quality: Definition of a Novel Quality Model	Int. J. Soft. Eng. Knowl. Eng. 28, 407 (2018), DOI: 10.1142/S0218194018500146, Open Access, IF: 0.299	Link
4	A.Mishev, S. Filiposka, O. Prnjat, I. Liabotis	"Improving service management for federated resources to support virtual research environments"	SCPE, Vol 19, No. 2, 2018 , pp. 203-214, DOI: 10.12694/scpe.v19i2.1354	Link

5	D. Vudragovic, L. Ilic, P. Jovanovic, S. Nickovic, A. Bogojevic, A. Balaz	"VI-SEEM dreamclimate service"	SCPE, Vol 19, No. 2, 2018 , pp. 215-221, DOI: 10.12694/scpe.v19i2.1396	Link
6	M. Alvanos, T. Christoudias	MEDINA: MECCA Development in Accelerators – KPP Fortran to CUDA source-to-source Pre-processor	Journal of Open Research Software, (2017), 5(1), p.13.	Link
7	H. Astsatryan, W. Narsisian, G. da Costa	SaaS for Energy Efficient Utilization of HPC Resources of Linear Algebra Calculations	Scalable Computing: Practice and Experience, 18 (2), pp. 145-150, doi: 10.12694/scpe.v18i2.1284 2017	Link1 Link2
8	H. Astsatryan, W. Narsisian, A. Kocharyan, G. da Costa, A. Hankel, A. Oleksiak	Energy Optimization Methodology for e-Infrastructure Providers	Concurrency and Computation: Practice and Experience, Vol 29, (10) 2017 , https://doi.org/10.1002/cpe.4073	Link
9	E. Atanassov, T. Gurov, S. Ivanovska and A. Karaivanova	"Parallel Monte Carlo on Intel MIC Architecture"	Procedia Computer Science, Volume 108, 2017 , Pages 1803–1810	Link
10	Petru Bogatencov, Nichita Degteariov, Nicolai Iliuha, Grigorii Horos	Virtualized Infrastructure for Integration Heterogeneous Resources	Proceedings of the 4th Conference of Mathematical Society of Moldova CMSM4'2017, 2017 , Chisinau, Republic of Moldova	Link
11	D. Dimitrov, E. Atanassov	Accounting Services for Heterogeneous Computing Resources	CIT, Volume 17, No 5, 81-88, 2017 , DOI: 10.1515/cait-2017-0057	Link1 Link2
12	W. van Gerven Oei, D.Tanaskovic and R. Zitko	"Magnetic Impurities in Spin-split Superconductors"	Phys. Rev. B 95 (2017) 085115	Link
13	H. Grigoryan, H. Astsatryan, T. Gevorgyan, V. Manukyan	Cloud Service for Numerical Calculations and Visualizations of Photonic Dissipative Systems	CIT, Volume 17, No 5 Special Issue, 2017 , DOI: 10.1515/cait-2017-0058	Link
14	A. Karaivanova, V. Alexandrov, T. Gurov, S. Ivanovska	On the Monte Carlo Matrix Computations on Intel MIC	CIT, Volume 17, No 5 Special Issue, 2017 , DOI: 10.1515/cait-2017-0054	Link

		Architecture		
15	V. Kyovtorov, I. Georgiev, S. Margenov, D. Stoychev, F. Oliveri, D. Tarchi	"New antenna design approach – 3D polymer printing and metallization. experimental test at 14–18 GHz"	AEU-International Journal of Electronics and Communications, Volume 73, 2017 , Pages 119–128	Link
16	R. Messina and I. E. Stankovic	"Assembly of Magnetic Spheres in Strong Homogeneous Magnetic Field"	Physica A 466 (2017) 10	Link
17	C. Pungila, V. Negru	FAST: A High-Performance Architecture for Heterogeneous Big Data Forensics	Proceedings of Intelligent Systems and Computing, Springer, Vol 649, pp 618-627, 2017, https://doi.org/10.1007/978-3-319-67180-2_60	Link
18	P. Bogatencov, G. Secrieru, N. Degteariov and N. Iliuha	Scientific Computing Infrastructure and Services in Moldova	In Journal "Physics of Particles and Nuclei Lett", Vol 13 (5), 685-688, 2016 , DOI: 10.1134/S1547477116050125	Link
19	Lj. Budinski-Petkovic, I. Loncarevic, Z. M. Jaksic and S. B. Vrhovac	"Jamming and Percolation in Random Sequential Adsorption of Extended Objects on a Triangular Lattice with Quenched Impurities"	J. Stat. Mech.-Theory Exp. 2016 (2016) 053101	Link
20	Z. Gacevic, N. Vukmirovic, N. Garcia-Lepetit, A. Torres-Pardo, M. Muller, S. Metzner, S. Albert, Z. A. Bengoechea-Encabo, F. Bertram, P. Veit, J. Christen, J. M. Gonzalez-Calbet and E. Calleja	"Influence of Composition, Strain, and Electric Field Anisotropy on Different Emission Colors and Recombination Dynamics from InGa _N Nanodisks in Pencil-like GaN Nanowires"	Phys. Rev. B 93 (2016) 125436	Link
21	T. Mertz, I. Vasic, M. J. Hartmann and W. Hofstetter	"Photonic currents in driven and dissipative resonator lattices"	Phys. Rev. A 94 (2016) 013809	Link
22	M. Mladenovic and N. Vukmirovic	"Spontaneous Polarization	J. Phys. Chem. C 120 (2016) 18895	Link

		Induced by Side Chains in Ordered Poly(3-hexylthiophene)"		
23	M. Opacic, N. Lazarevic, M. M. Radonjic, M. Scepanovic, H. Ryu, A. Wang, D. Tanaskovic, C. Petrovic and Z. V. Popovic	"Raman Spectroscopy of KxCo2-y Se2 Single Crystals Near the Ferromagnet-paramagnet Transition"	J. Phys. Cond. Matt. 28 (2016) 485401	Link
24	A. Radenski, T. Gurov, et al.	"Big Data Techniques, Systems, Applications, and Platforms: Case Studies from Academia"	"Annals of Computer Science and Information Systems", Volume 8, Proceedings of the FedCSIS'16, 883 – 888, 2016 , DOI: 10.15439/2016F91	Link
25	I. E. Stankovic, M. Dasic and R. Messina	"Structure and Cohesive Energy of Dipolar Helices"	Soft Matter 12 (2016) 3056	Link
26	I. Vasic and A. Balaz	"Excitation Spectra of a Bose-Einstein Condensate with an Angular Spin-orbit Coupling"	Phys. Rev. A 94 (2016) 033627	Link
27	Hrachya Astsatryan, Vladimir Sahakyan, Yuri Shoukourian, Pierre-Henri Cros, Michel Dayde, Jack Dongarra, Per Oster	Strengthening Compute and Data intensive Capacities of Armenia	IEEE Proceedings of 14th RoEduNet International Conference - Networking in Education and Research (NER'2015), Craiova, Romania, pp. 28-33, 2015	Link

Annex 3 VI-SEEM Regional Conference "e-Infrastructures for excellent science in Southeast Europe and the Eastern Mediterranean", 15-16 May Sofia, Bulgaria

Day 1: May 15

Venue: Grand Hotel Sofia 1, Gurko Str. 1, 1000 Sofia

12:00 - 13:45	Registration
13:00 - 14:00	<i>Networking lunch</i>
14:10 - 15:30	Session 1: e-Infrastructure collaboration in Southeast Europe and Eastern Mediterranean and EU initiatives Chair: Prof. Aneta Karaivanova IICT-BAS, Bulgaria
14:00 - 14:10	Opening - Prof. Ivan Dimov , Deputy Minister for Education and Science, Bulgaria
14:10 - 14:40	EOSC implementation roadmap - Dr. Augusto Burgueno Arjona , Head of the e-Infrastructure & Science Cloud Unit of the European Commission
14:40 - 15:05	Regional e-Infrastructure collaboration: history, status and perspectives - Dr. Ognjen Prnjat , GRNET, Greece
15:05 - 15:30	VI-SEEM digital services for Open Science - Dr. Anastas Misev , UKIM, FYR of Macedonia
15:30 - 16:00	<i>Coffee break</i>
16:00 -	Session 2: Enhancing the value of the regional collaboration

18:00	Chair: Prof. Aleksandar Belic , Institute of Physics Belgrade, Serbia
16:00 - 16:20	Flagship user community: Digital Cultural Heritage - Dr. George Artopoulos , Cyprus Institute, Cyprus
16:20 - 16:40	e-Infrastructures in Bulgaria: regional perspective – Prof. Aneta Karaivanova , IICT-BAS, Bulgaria
16:40 - 18:00	<p>Panel: Value of regional collaboration for research, education and technological development</p> <p>Participants:</p> <ul style="list-style-type: none"> • Dr. Sasa Lazovic, Assistant Minister at the Ministry of Education, Science and Technological Development, Government of the Republic of Serbia • Prof. Constantia Alexandrou, Director of the Computation-based Science and Technology Research Center, Cyprus Institute • Dr. Augusto Burgueno Arjona, Head of the e-Infrastructure & Science Cloud Unit of the European Commission • Mr. Sasa Ivanovic, Ministry of Science and ESFRI delegate, Government of Montenegro • Prof. Dr Ramaz Kvatadze, Executive Director, Georgian Research and Educational Networking Association, on behalf of the Eastern Partnership Connect initiative
19:30	Networking dinner at "Laura" restaurant Address: Sofia, boulevard "Bulgaria" № 1, National Palace of Culture / Level 2, entrance to the A4 / the stairs to the right

Day 2: May 16**Venue:** Best Western Expo Hotel, 149 Tsarigradsko Shosse blvd, 1784 Sofia

	Parallel Session	
	Hall: Esplanade I	Hall: Esplanade II
09:30 - 11:00	Cross Disciplinary & Digital Cultural Heritage <u>Chair: George Artopoulos</u> <ul style="list-style-type: none"> • DataCrowds: Data Driven Crowds, Panayiotis Charalambous, The Cyprus Institute, Cyprus • DronMapper: DroneMapper – Cloud Application for Automatic Image Mosaicking and Georeferencing, Zarko Zecevic, University of Montenegro, Faculty of Electrical Engineering, Montenegro • Ontologies in VI-SEEM: Towards an ontology solution in VI-SEEM, Valentina Vassallo, The Cyprus Institute, Cyprus • CLOWDER: Enabling virtual collaboration in Digital Cultural Heritage in the SEEM region, Panayiotis Charalambous, The Cyprus Institute, Cyprus • VirMuf: The Virtual Museum Framework, Mohammed El Farargy, Bibliotheca Alexandrina, Egypt. 	Life Science <u>Chair: Kleitos Sokratous</u> <ul style="list-style-type: none"> • MULTIDRAG: Transfer of a drug-peptide complex through model cell membranes, Gergana Gocheva, Faculty of Chem. and Pharm., Sofia University, Bulgaria • MolSurf: Folic acid and anifolates in aqueous solution – a molecular dynamics study, Fatmegyul Mustan, Faculty of Chem. and Pharm., Sofia University, Bulgaria • Surf_prop: Molecular dynamics study of the kinetics of adsorption of LAS molecules, Nikoleta Ivanova, Faculty of Chem. and Pharmacy, Sofia University, Bulgaria • PSOMI: Modeling and Molecular Dynamics Simulations Study of Enol-Carbonates and Their Derivatives, Mijan Bigovic, Faculty of Nat. Sci., UoM, Montenegro • CNCADD: Semiempirical Atom-centered Density Matrix Propagation Approach to Temperature-dependent Vibrational Spectroscopy of Irinotecan, Ljupco Pejov, Institute of Chemistry, Faculty of Nat. Sci., UKIM, FYROM
11:00 - 11:45	Coffee Break and Poster Session	
11:45 - 13:15	Digital Cultural Heritage <u>Chair: Mihajlo Savic</u> <ul style="list-style-type: none"> • BVL: Distributed Optical Character Recognition for Old Romanian Prints, Bogdan Irimie, West University of 	Life Sciences <u>Chair: Emanouil Atanasov</u> <ul style="list-style-type: none"> • CCC / CCCSCMRR: Classifying Cancer Cells from Mammograms, Sa'ed Hayajneh, Jordanian Ministry of

	<p>Timisoara, Romania</p> <ul style="list-style-type: none"> • Manuscript: Semi-automatic collaborative processing of historical manuscripts, Jihad El-Sana, Ben-Gurion University, Israel • CH-CBIR: Convolutional Neural Networks for High Resolution Remote Sensing Image Classification, Vladimir Risojevic, University of Banja Luka, Bosnia and Herzegovina • AUTOGR / mGeoAI: Image and Signal Processing for Cultural Heritage: AutoGR SIFT and 3DINV Cloud Applications, Nikos Papadopoulos, Foundation for Research and Technology, Greece • DREAMCLIMATE: VI-SEEM DREAMCLIMATE Service, Luca Ilic, Institute of Physics Belgrade, Serbia 	<p>Health, Jordan</p> <ul style="list-style-type: none"> • OPERA-P: Empowering Pilot-jobs of HPC Scientific Applications over Data-intensive Clouds and Cyber-infrastructure, Feras M. Awaysheh, University of Santiago de Compostela, Spain • SAMaCD: IMGGE biobank of thrombosis - from the past to the future, Branko Tomic, Institute of Molecular Genetics and Genetic Engineering, Serbia • MDSMS: An integrated web-based interactive data platform for molecular dynamics simulations, Armen Poghosyan, The International Scientific-Educational Center of NAS RA, Armenia • MD-Sim: A web-based crystallographic tool for the construction of nanoparticles, Alexis Chatzigoulas, Biomedical Research Foundation, Acad. of Athens, Greece
13:15 - 14:15	Lunch	
14:15 - 15:45	<p>Climate <u>Chair: Hrachya Astsatryan</u></p> <ul style="list-style-type: none"> • EMAC: Accelerated Atmospheric Climate Kinetics in Earth System Modelling, Theodoros Christoudias, CYI, Cyprus • DACEM1/DACEM2: The Euro-Mediterranean thermal bioclimate: Climatology and trends, Theodoros Giannaros, National Observatory of Athens, Greece • VINE: Effect of dust aerosols in forming the regional climate of Georgia, Teimuraz Davitashvili, Tbilisi State University, Georgia • AUTH_WRF371M_EURO.44: Applications of the regional climate model WRF-AUTH, Stergios 	<p>Related Project Session <u>Chair: Andreas Athenodorou</u></p> <ul style="list-style-type: none"> • ARIADNE: The European e-infrastructure for digital archaeology, Nadezda Kecheva, NAIM-BAS, Sofia, Bulgaria • EOSC-HUB: The first building blocks of the European Open Science Cloud from the EOSC-hub project, Gergely Sipos, EGI Foundation, Netherland • BioExcel Centre of Excellence: Driving and Supporting Computational Biomedical Research in Europe, Rossen Apostolov, KTH Royal Institute of Technology, Sweden • REDASP: HPC for SMEs, Marijana Bozic, Regional Agency for EDS&P, Serbia

	<p>Kartsios, Aristotle University of Thessaloniki, Greece</p> <ul style="list-style-type: none"> • 3DVAR_WRF: Using WRF-3DVAR assimilation system to improve the weather prediction over the Ararat Valley Region of Armenia, Zarmandukht Petrosyan, Armenian Hydromet Service, Armenia 	<ul style="list-style-type: none"> • VMWare EMEA: Current Research Initiatives, Vesselin Arnaudov, VMware, Bulgaria
15:45 - 16:15	<i>Coffee Break</i>	
16:15 - 17:45	<p>Climate <u>Chair: Theodoros Christoudias</u></p> <ul style="list-style-type: none"> • ClimStudyArmenia: Weather Data Visualization and analytical platform, Zarmandukht Petrosyan, Armenian Hydromet Service, Armenia • ACIQLife/TVRegCM: Climate Applications in a Virtual Research Environment Platform, Vladimir Ivanov, NIGGG-BAS, Bulgaria • OPENFOAM: An Analysis for Parallel Wind Simulation Speedup using OpenFOAM, Neki Frasheri, Polytechnic University of Tirana, Albania • Continuous_LST: Prediction of pest population dynamics using satellite data, Itamar Lensky, Bar Ilan University, Israel • DRS-ACS: Dynamic versus static approach to theoretical anharmonic vibrational spectroscopy of molecular species relevant to atmospheric chemistry: a case study of formic acid, Jovica Todorov, Institute of Chemistry, Faculty of Natural Sciences and Mathematics, Skopje, FYR of Macedonia 	<p>Services <u>Chair: Anastas Mishev</u></p> <ul style="list-style-type: none"> • DICOMNetwork: DICOM data processing optimization in medical information systems, Peter Bogatencov, RENAM Association, Moldova • VRE Management: Improving service management for federated resources to support Virtual Research Environments, Sonja Filiposka, Ss. Cyril and Methodius University, FYR of Macedonia • Monitoring: Monitoring of Heterogeneous Computing Infrastructure in VI-SEEM Project, Vladimir Risojevic, University of Banja Luka, Bosnia&Herzegovina • Accounting: Accounting services for the heterogeneous computing resources in VI-SEEM project, Dimitar Dimitrov, IICT-BAS, Bulgaria • VRE data discovery service: Solutions for Data Discovery Service in a Virtual Research Environment, Vladimir Dimitrov, IICT-BAS, Bulgaria

Poster Session: 11:00 – 11:45

Scientific Community	Application / Project Acronym	No:	COUNTRY	Presentation Title	Presenter	Affiliation
Climate	HIRECLIMS	1	RO	High Resolution Climate Services for Southern Europe using regional climate modelling	Liviu Oana	National Meteorological Administration, Romania
	ACIQLife/TVReg CM	2	BG	Sensitivity Study of Different RegCM4.4 Model Configurations – Consolidated Results from the TVRegCM Experiment	Hristo Chervenkov	NIMH-BAS, Bulgaria
	RCM Mena-CORDEX	3	CY	CESM/WRF Regional Climate Projections for the MENA-CORDEX Domain	Theodoros Christoudias	The Cyprus Institute, Cyprus
	WRF-ARW / WheAirCYEM	4	CY	Air quality modelling in the summer over the eastern Mediterranean using WRF-Chem: chemistry and aerosol mechanism intercomparison	George Georgiou	The Cyprus Institute, Cyprus
	NBBM4RHMS	5	MK	Numerical weather prediction system - tool for environmental hazard forecasting	Goran Petrevski	UKIM, Faculty of Computer Science and Engineering, FYR of Macedonia
DCH	PETRA	6	JO	Characterisation and Conservation of Paintings on walls and sculptures from Nabataean Petra	Maram Na'es	Technical University Berlin, Germany
	CHERE	7	BA	CHERE Application Services	Mihajlo Savic	University of Banja Luka,

						Bosnia and Herzegovina
	IMC4CH	8	BG	Inventory and Management Cloud for Bulgarian Cultural Heritage	Vencislav Pirinski	IMI-BAS, Bulgaria
Life Science	OP4D	9	BA	Measurements of Orthodontic Study Models in OP4D	Mihajlo Savic	University of Banja Luka, Bosnia and Herzegovina
	MDSIM	10	CY	MD simulations of BRCA1-RING domain missense mutations	Kleitos Sokratous	The Cyprus Institute of Neurology and Genetics, Cyprus
Services	Data Analysis	11	RS	VI-SEEM Data Analysis Service	Petar Jovanovic	Institute of Physics Belgrade, Serbia

Annex 4 VI-SEEM presentations at scientific conferences

1. (IICT-BAS): E. Atanasov, "Sensitivity Analysis of Quasi-Monte Carlo methods for the Heston Model", 13th International Conference in Monte Carlo & Quasi-Monte Carlo Methods in Scientific Computing, Rennes, France, July 1-6, 2018, [link](#).
2. (IICT-BAS): T. Simchev, "Elastic High-Performance Computing Platform for Real-Time Data Analysis (Xeon Phi, Kubernetes, Docker, Apache Kafka)", Tenth Jubilee Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences, Albena, Bulgaria, June 20-25, 2018.
3. (IICT-BAS): V. Koleva-Efremova, "Optimizing Parallelization by the Cluster Platform Avitohol of the CFD Method of a Trimaran", Tenth Jubilee Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences, Albena, Bulgaria, June 20-25, 2018.
4. (NIGGG-BAS): G. Gadzhev, "Vertical Structure of Atmospheric Composition Fields over Bulgaria", International Conference on "Numerical Methods for Sci. Computations and Advanced Applications", 28-31 May, 2018, Hissarya, Bulgaria. [link](#)
5. (NIGGG-BAS): I. Georgieva, "Computer Simulations of PM Concentrations Climate for Bulgaria", International Conference on "Numerical Methods for Sci. Computations and Advanced Applications", 28-31 May, 2018, Hissarya, Bulgaria, [link](#)
6. (IICT-BAS): A. Karaivanova, "Study of Scalability and Energy Efficiency of QMC Algorithms on Hybrid HPC Systems", International Conference on "Numerical Methods for Scientific Computations and Advanced Applications", 28-31 May, 2018, Hissarya, Bulgaria, [link](#).
7. (NIGGG-BAS): G. Gadzhev, Computer simulations of PM pollution in urban areas - some results for Sofia city, European Geosciences Union General Assembly 2018 Vienna | Austria | 8–13 April 2018.
8. (UniBL) M. Savic presented first results from OP4D application in Contemporary Materials 2017 conference in Banja Luka – paper titled "A SYSTEM FOR MEASUREMENTS OF 3D SCANNED ORTHODONTIC STUDY MODELS" selected for inclusion in journal of the same name in February 2018. Produced a promotional poster for the event.
9. (UniBL) M. Savic, "Evaluation of Split-Brain Autoencoders for High-Resolution Remote Sensing Scene Classification", International Symposium ELMAR-2018, Zadar, Croatia September 16-19 2018

10. (UniBL) Ratko Pilipović and Vladimir Risojević, "Evaluation of Convnets for Large-Scale Scene Classification From High-Resolution Remote Sensing Images", Proc. 17th IEEE International Conference on Smart Technologies IEEE EUROCON 2017, Ohrid, Macedonia, pp.955-960, July 2017.
11. (Cyl) Conference presentation: Application of the WRF-Chem model for the simulation of air quality over Cyprus, J Kushta, Y Proestos, G Georgiou, T Christoudias, J Lelieveld, EGU General Assembly Conference Abstracts 19, 12333.
12. (Cyl) Conference presentation: Air quality modelling over the Eastern Mediterranean using the WRF/Chem model: Comparison of gas-phase chemistry and aerosol mechanisms, G. K Georgiou, T Christoudias, Y Proestos, J Kushta, P Hadjinicolaou, Jos Lelieveld EGU General Assembly Conference Abstracts 19, 7894.
13. (IICT-BAS): E. Atanassov, "Efficient Parameter Estimation of Hidden Markov Chain Models Using Xeon Phi Coprocessors", 11th International Conference on Large-Scale Scientific Computations (LSSC2017) June 5-9, 2017, Sozopol, Bulgaria; Audience: more than 120 Bulgarian and international scientists from the Computer Science and Applied Mathematics communities.
14. (IICT-BAS): D. Dimitrov, "Accounting Services for Heterogeneous Resources", The 9th International Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences (AMITANS2017), Albena, Bulgaria, June 21-26, 2017. Audience: about 100 Bulgarian and international participants from applied mathematics, engineering and informatics communities.
15. (IICT-BAS): S. Ivanovska, "Parallel Monte Carlo on Intel MIC Architecture", International Conference on Computational Science (ICCS 2017), Zurich, Switzerland, 12-14 June, 2017. Audience: more than 300 international reserchers from the applied mathematics and computer sciences.
16. (NIGGG-BAS): G. Gadzhev, "TVRegCM Numerical Simulations - Preliminary Results", 11th International Conference on Large-Scale Scientific Computations June 5-9, 2017, Sozopol, Bulgaria; Audience: more than 120 Bulgarian and international scientists from the Computer Science and Applied Mathematics communities.
17. (NIGGG-BAS): I. Georgieva, "Evaluation of the Health Impact of the Air Quality in Bulgaria", 11th International Conference on Large-Scale Scientific Computations June 5-9, 2017, Sozopol, Bulgaria; Audience: more than 120 Bulgarian and international scientists from the Computer Science and Applied Mathematics communities.
18. (NIGGG-BAS): N. Miloshev, "Computer simulations of atmospheric composition in urban areas some results for the city of Sofia", 11th International Conference on Large-Scale Scientific Computations June 5-9, 2017, Sozopol, Bulgaria; Audience: more than 120 Bulgarian and international scientists from the Computer Science and Applied Mathematics communities.
19. (GRENA): R. Kvatadze "e-Infrastructure for research and education in Georgia", VIII International Conference of the Georgian Mathematical Union on September 4-8, 2017, Batumi, Georgia;

Audience: more than 120 Georgian and international researchers.

20. (GRENA): T. Davitashvili "Simulation and analysis of some non-ordinary atmosphere processes by WRF model based on the GRID Technologies", VIII International Conference of the Georgian Mathematical Union on September 4-8, 2017, Batumi, Georgia;

Audience: more than 120 Georgian and international researchers.

21. (GRENA): N. Kutaladze "Regional climate prediction system for south Caucasus region", VIII International Conference of the Georgian Mathematical Union on September 4-8, 2017, Batumi, Georgia;

Audience: more than 120 Georgian and international researchers.

22. (GRENA): G. Mikuchadze "Simulation of air pollutant distribution over the Caucasus on the bases of WRF-Chem model", VIII International Conference of the Georgian Mathematical Union on September 4-8, 2017, Batumi, Georgia;

Audience: more than 120 Georgian and international researchers.

23. (UPT) N. Frasheri, D. Minarolli, "Project VI-SEEM – a Regional Virtual Research Environment", Int. conf. ISTI 2017, 23-24 June 2017, Tirana

24. (UPT) N. Frasheri, E. Atanassov, "Interprocess Communication Issues with OpenFOAM for Wind Simulation", BalkanCom 2017, Tirana, Albania, May30 – June 2, 2017

25. (RENAM) Participation of Mr. Nichita Degteariov in the 4th Conference of Mathematical Society of the Republic of Moldova, dedicated to the centenary of Vladimir Andrunachievici (1917-1997), Chisinau, Republic of Moldova, June 28 – July 2, 2017 with presentation entitled "Virtualized Infrastructure for Integration Heterogeneous Resources".

26. (UKIM) B. Koteska: Modeling the solid-state vibrational spectroscopic properties of morphine-based formulations with hybrid meta density functional theory, IEEE Eurocon2017 conference, http://eurocon2017.org/Documents/SS-7_CfP.pdf, Ohrid, 6-8 July 2017.

27. (UKIM) Lj. Pejov: Computational approach towards vibrational spectroscopic detection of molecular species relevant to atmospheric chemistry and climate science: The formic acid rotamers, IEEE Eurocon2017 conference, http://eurocon2017.org/Documents/SS-7_CfP.pdf, Ohrid, 6-8 July 2017.

28. (UVT) Pop D., Irimie B., Petcu D., Distributed Optical Character Recognition for Old Romanian Prints, presented at HPC-ST workshop of SYNASC 2017, 21-24 September 2017, Timisoara, result of the cooperation with DHC community, https://synasc.ro/2017/wp-content/uploads/sites/7/2017/08/SYNASC2017_Workshops_AcceptedPresentations.pdf ;

29. (Cyl) Andreas Athenodorou presented the VI-SEEM Project at the 15th SESAME Users' Meeting (18th – 19th December, 2017) Gerasa Hotel, Amman, Jordan. A lot of scientists expressed great interest towards the services provided by VI-SEEM. In addition VI-SEEM brochures were distributed
30. (RENAM) Alexandr Golubev participated in the International Conference ICMCS-2017, 19-21 October 2017, Chisinau, Moldova with presentation "Исследование способов хранения, передачи и обработки больших объёмов данных в DICOM формате для медико-информационных систем (Investigation of the ways of storing, transferring and processing of large volumes of data in the DICOM format in medical information systems)".
31. (RENAM) Peter BOGATENCOV participated in the International Conference ICMCS-2017, 19-21 October 2017, Chisinau, Moldova with presentation "Rețeaua RENAM: noi oportunități pentru dezvoltarea conexiunilor CBF regionale" that described development of communication and computing infrastructure in Moldova that is integrated part of VI-SEEM platform.
32. (IIAP-NAS-RA): H. Astsatryan, On the Performance and Energy Consumption of Molecular Dynamics Applications for Heterogeneous CPU-GPU Platforms based on Gromacs, Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria;
33. (IICT-BAS): D. Dimitrov, "Accounting Services for Heterogeneous Resources", Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria.
34. (IICT-BAS): T. Simchev, "Opportunities to use Linux containers in Avitohol", Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria.
35. (UPT): N. Frasheri, "Scalability Issues for Wind Simulation Using OpenFOAM", Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria.
36. (IICT-BAS): Nikoleta Ivanova, Transfer of a drug-peptide complex through model cell membranes, Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding MultiDRUG application, LS).
37. (IICT-BAS): Gergana Gocheva, Folic acid and anifolates in aqueous solution – a molecular dynamics study, Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding MultiDrug application, LS).
38. (IICT-BAS): Fatmegyul Mustan, Molecular dynamics study of the kinetics of adsorption of LAS molecules, Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding MolSurf application, LS).

39. (IICT-BAS): Sonya Tsibranska, Structure of dense adsorption layers of escin at the air-water interface studied by molecular dynamics simulations, Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding MolSurf application, LS).
40. (IICT-BAS): V. Pirinski, Inventory and Management Cloud for Bulgarian Cultural Heritage, Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding IMC4CH application, DCH).
41. (NIGGG-BAS): G. Gadzhev, "TVRegCM results for Balkan peninsula", Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding TVRegCM application, CC).
42. (NIGGG-BAS): I. Georgieva, "HPC simulations of the atmospheric composition in Bulgaria and city of Sofia", Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding ACIQLife application, CC).
43. (NIGGG-BAS): D. Syrakov, "Operational System for Early Warning for Contamination of Fine Dust Particles for the Sofia Region", Workshop "Two Years Avitohol: Advanced HPC applications", 29-31 October 2017, Panagyurishte, Bulgaria. (Results regarding ACIQLife application, CC).
44. (UNIBL) Presented first results from OP4D application in Contemporary Materials 2017 conference in Banja Luka – paper titled "A SYSTEM FOR MEASUREMENTS OF 3D SCANNED ORTHODONTIC STUDY MODELS". Selected for inclusion in journal of the same name in February 2018. Produced a promotional poster for the event.
45. (IPB) Dusan Vudragovic presented the VI-SEEM VRE at the 10th edition of the RO-LCG International Conference on the Grid, Cloud, and High-Performance Computing in Science, held between 26-28 October 2017 in Sinaia, Romania (<http://www.nipne.ro/indico/conferenceDisplay.py?ovw=True&confId=346>). An extended abstract of the talk has been published in the conference proceedings.

Annex 5 VI-SEEM success stories

Scientific Community	No:	Title of Success story	Institution, Country	Link
Climate	1	Precipitation bias in RegCM model simulations for South Caucasus Domain	GRENA, Georgia	link
	2	DREAMCLIMATE dream team	IPB, Serbia	link
	3	Assessing the impact of fleet management on air quality	ICOM Ltd. and IICT-BAS, Bulgaria	link
	4	TVRegCM - Tuning and Validation of the model RegCM for South-East Europe	NIGGG-BAS, Bulgaria	link
	5	Climate-Atmospheric Chemical Kinetics on GPU Accelerators	CyI, Cyprus	link
	6	Parallel wind simulation speedup using OpenFOAM	UPT, Albania	link
	7	Regional Clim Research on fruit splitting in Citrus	ARO and BIU, Israel	link
DCH	8	Using Convnets for Large-scale Scene Classification from High-resolution Remote Sensing Images	UniBL, Bosnia&Herzegovina	link
	9	VirMuF – Virtual Museum Framework for Exhibiting Digitized Collections	BA, Egypt	link

	10	Banatica Virtual Library: Making old prints widely available and machine processable	"Eugen Todoran" TCULib-Timisoara (Romania) and "Zarko Zrenjanin" public library (Serbia)	link
Life Science	11	CNCADD - Conventional vs Novel Computer Assisted Drug Delivery	UKIM, FYROM and BA, Egypt	link
	12	DICOM Network – Solution for Medical Images Archiving, Accessing, Processing and Visualization	IMU and RENAM, Moldova	link
	13	Verification of the synthesized molecules by molecular dynamic simulations	UoM, Montenegro	link
	14	WebplatforMD – An Integrated Web-based Interactive Data Platform For Molecular Dynamics Simulations	ISEC NAS-RA and MolPhys YSU, Armenia	link
	15	VI-SEEM team ranks #1 in international computer-aided drug design competition	BRF AA, Greece	link
Services, Computing, training	16	Empowering Pilot-abstractions of SESAME Scientific Applications over Data-intensive Clouds and Cyber-infrastructure (SESAME, Tool&Services)	SESAME, Jordan	link
	17	VI-SEEM Digital Cultural Heritage (DCH) Regional Training Event	BA, Egypt	link
	18	National Training on Google Earth Engine (GEE) and Remote Sensing and Climate Applications	IIUCC, Israel	link
	19	The BA High-Performance Computing (HPC) upgraded "C2" cluster and the VI-SEEM project	BA, Egypt	link