



## **D-NA2.4.1: Application demonstrators for dissemination and public outreach: updated applications and evaluation**

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## Executive Summary

The main objectives of WP2/NA2 are: (1) select existing pilot data-intensive applications and design sound use case scenarios; (2) analyze and define a use case implementation strategy during the project with WP8, WP7 and WP9; (3) support and evaluate the "productizing" transition of the methods and their implementation performed by WP8; (4) support and evaluate the deployment and the efficiency of the pilot applications and their use case scenarios on the VERCE platform; (5) define in collaboration with NA3 documentation and tailored training session material; (6) provide requirements and support to WP7 and WP9 for tailored interfaces of the scientific gateways targeted to the developers and the users.

VERCE's primary objective consists of "enabling" existing data- and HPC-intensive software applications through the development of processing elements (PEs) within dedicated workflows. It follows that the applications to be enabled or that are under construction are all well developed and already have their own line of implementation. This also implies that they have already been chosen their dissemination strategies through tutorials, web portals, etc.

The activities involved interactions with WP7/SA3 and JRA1 in the realization of the VERCE gateway front-end, in particular seismologists provided guidelines, suggestions, testing efforts and models/meshes to implement the current stage of the forward simulation portal. Technical details of the portal are in SA3 reporting deliverable.

## 1 Introduction

This report of the WP2/NA2 concerns the description of the joint efforts of NA2 with WP7/SA3 and JRA1 to finalize the implementation of the VERCE Science Gateway and present it in an official Webinar. The portal is particularly oriented to HPC applications as the simulation of synthetic seismic waveforms in agreement with the modified workplan presented in the previous reporting period.

## 2 Training webinar on the VERCE Science Gateway for HPC applications

The HPC use case demonstrator has been identified in the last reporting period as the first priority demonstrator. It is mainly focused on the production and visualization of the synthetic seismic wavefields generated by earthquakes in a given region. This demonstrator has been implemented in the VERCE Science Gateway exploiting the SCI-BUS technology and the first version of the portal has been released in March 2014. The joint NA2/SA3/JRA1 effort has thereby made the HPC use case demonstrator a feature-rich product ready for the targeted dissemination and outreach purposes. Thus, a complementary training session has been organized in July 2014 in order to present the functionalities of the gateway to an external audience selected within the EPOS and CIG community. The webinar had the intent of both promoting the present gateway structure and facilities but also to highlight the flexibility of the portal to be exploited for customized applications. It also showed to the test users how to use the portal for their work and included a practical session. In summary, the training webinar of July 2014 has been structured as follows.

### 2.1 10th July: Presentation of the science gateway for HPC applications

1. A complete overview of the VERCE gateway has been presented in order to explain the underlying structure, all the services implemented and the included functionalities. The connections with external projects that are directly related to VERCE and that offer complementary services have been also highlighted.
2. The HPC resources, both EGI and PRACE, available through the gateway have been presented together with the required certificates and the authentication procedure.
3. Outlines of the scientific problem (seismic forward modeling) exemplified by the HPC use case demonstrator have been presented, focusing on the principal advantages gained by the use of the VERCE portal. Basic information on the numerical code so far implemented in the gateway, i.e. SPECFEM3D, has been also given to the users to show the wide range of possible applications.
4. A live demonstration of the portal usage has been led by the trainers explaining in detail all the steps to set up and launch a forward modeling experiment and to access the obtained results. The test users have been encouraged to largely test the platform with customized experiments.
5. The users have been also provided by detailed instruction on how to create customized meshes and velocity models to be in case implemented in the library of the portal.

### 2.2 17th July: Practical use of the gateway

A brief summary on the usage and features of the gateway has been given to the test users to sum up the 10th July presentation. Then, all the beta testers have been involved in a practical demo of the portal during which they have been guided by the trainers in:

- uploading the required certificates

- setting up the simulation experiment:
  - select the solver, mesh and velocity model
  - select earthquakes to be simulated and seismic stations
  - select the HPC resource and launch the simulation
- accessing the results and visualizing waveforms, wavefields propagation and ground shaking maps

All the videos of the training webinar are available at <http://www.verce.eu/Training/UseVERCE.php>