



**Codes And Methods Improvements  
for VVER comprehensive safety assessment**

Grant Agreement Number: 945081

Start date: 01/09/2020 - Duration: 36 Months

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**WP8 – Project Management - Task 8.3**

**D8.3 – The CAMIVVER final dissemination,  
communication and networking report**

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Version 1 – 31/08/2023



This project has received funding from the Euratom research and training programme 2019-2020 under grant agreement No 945081.




**CAMIVVER – Grant Agreement Number: 945081**

Document title	The CAMIVVER final dissemination, communication and networking report
Author(s)	Barbara Vezzoni, Denis Verrier
Document type	Deliverable
Work Package	WP8
Document number	D8.3 - version 1
Issued by	Framatome
Date of completion	31/08/2023
Dissemination level	Public

**Summary**

This document presents the final status of the dissemination, communication and networking activities of the CAMIVVER project.

**Approval**

Version	First Author	WP leader	Project Coordinator
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# 1. Introduction

This document states about the progress of actions taken in terms of knowledge dissemination, internal/external communication, and exploitation of the CAMIVVER project results. The selected actions have been presented in deliverable “D8.1 – The CAMIVVER Dissemination and exploitation plan”.

The document presents the status at the end of the project.

# 2. Communication Tools and Actions

## Public website

The CAMIVVER website <http://camivver-h2020.eu/> (see Figure 1) has been created and launched in February 2021 as part of WP2 activities (Task 2.3) in collaboration with WP8.



**Figure 1 website screenshot**

The website includes information about Project objectives, organization, and partners. The “Results” page shows the list of public deliverables and offers the possibility to freely download those which have been released. Almost all of project deliverables are public.

Statistics of visits per country are given in Table 1.

## LinkedIn

The LinkedIn account <https://www.linkedin.com/company/camivver-h2020-european-project/> was created during the first months of the Project to promote its events, workshop, and public deliverables.

The main events (workshop and participation to conferences) have been posted during the past month. However, the activity using LinkedIn has been quite limited.

There is a significant potential for improving the communication with this tool. For instance, highlighting the released deliverables could be promoted, with direct links to the website. This point may be improved for the project follow-up.

## E-newsletters

A total of 2 electronic newsletters are expected to be distributed to the CAMIVVER partners and to the stakeholder's community to inform them on the latest achievements of the project, outputs and relevant events, conferences or workshops.

The first issue <http://camivver-h2020.eu/src/assets/doc/CAMIVVER-Newsletter1.pdf>, has been published in November 2021. It has been distributed by email to more than 100 addressees and uploaded on the website where everyone can get it.

The second issue <http://www.camivver-h2020.eu/src/assets/doc/CAMIVVER-Newsletter2.pdf>, has been published in November 2022. It has been distributed by email to more than 100 addressees and uploaded on the website where everyone can get it. It includes details on the results obtained, paper presented and first announcement of the final workshop.

## Press release

No press release has been published to date.

## Participation to events/conferences and scientific publications

Several publications have been produced during the project. They could be organized in two groups: international conferences and scientific journals.

Publications at international conferences are listed below:

- Codes and Methods Improvements for VVER comprehensive safety assessment: the CAMIVVER H2020 project, D. Verrier et al. published in 2021 for the ICONE28 Conference organized by ASME. The conference has been held virtually online on August 4-6, 2021. The paper has been presented by means of a short synthetic 5 minutes pre-recorded video (imposed format by ASME).
- Codes and Methods Improvements for Safety Assessment: Varied Approaches, A. Cagnac, D. Verrier, Dr. V. Pištora at the FISA 2022 conference (Lyon, France, May 30 to June 3, 2022). The CAMIVVER project has been selected to be included in a mutualized paper together with APAL and sCO2-4-NPP projects.
- O. Halim, A. Pucciarelli & N. Forgione. " CFD Simulation of a VVER-1000/320 at Nominal Operating Conditions", NENE2022 31th International Conference Nuclear Energy for New Europe, 12-15 September, Portorož, Slovenia.
- D. Verrier et al., "The CAMIVVER Project for Codes And Methods Improvements For VVER", VVER-2022, 10-11 October 2022, Řež, Czech Republic.
- B. Vezzoni et al., "Advanced Simulations and Multi-physics lattice and core modeling for VVER applications", VVER-2022, 10-11 October 2022, Řež, Czech Republic.

- A. Brighenti et al., “Development of a multi-parameter library generator prototype for VVER and PWR applications based on APOLLO3” submitted for M&C2023 Conference.
- L. Mercatali et al., “Advanced Multiphysics Modeling for PWR and VVER Applications”, submitted for ICAPP2023 Conference.
- A. Stefanova, P. Groudev, P. Vryashkova, O. Bernard, J. Etcheto, V. Sanchez, A. Hashymov, S. Dombrovskiy, Y. Onyschuk, “Benchmark results of Main Coolant Pump start-up transient of the VVER1000 Kozloduy-6 Nuclear Power Plant”, Proceedings of ICAPP 2023, 23-27 April – Gyeongju, Korea, Paper 2023117

Publications at Scientific Journals are listed below:

- Cross sections polynomial axial expansion within the APOLLO3® 3D characteristics method, A. Gammicchia, S. Santandrea, S. Dulla in Annals of Nuclear Energy (Volume 165) – related to WP4 activities.
- P. Petkov Groudev et al., “Validation of a VVER 1000 TRACE Model”, Comptes rendus de l'Académie bulgare des Sciences, Tome 75, no. 5, pp. 655-662, 2022. <https://doi.org/10.7546/CRABS.2022.05.04>
- B. Calgaro & B. Vezzoni, “Advanced Couplings and Multiphysics Sensitivity Analysis Supporting the Operation and the Design of Existing and Innovative Reactors”, Energies 2022, 15(9), 3341; <https://doi.org/10.3390/en15093341>.

Publications under preparation for completing final results:

- CFD Analysis of Coolant Mixing in VVER-1000/V320 Reactor Pressure Vessel – Paper related to Task 6.2.

Two papers related to WP4 and WP5 final results under discussion for submission to PHYSOR2024.

## Final workshop

A final workshop has been organized at KIT (Karlsruhe, Germany) on 3-5 July 2023. The results of the project and the lessons learned have been presented to an audience of more than 60 participants from several countries. Three invited talks were proposed and a dedicated deliverable, *D8.4 - Report of the CAMIVVER International Workshop*, summarizes the presentations done as well as gives more detail on the audience. The final workshop has been announced (Figure 2) via the CAMIVVER webpage and Newsletter.



**Figure 2 Announcement final workshop in the webpage**

### 3. Exploitation actions

One of the main exploitation results of the CAMIVVER project is to support activities concerning education and training in the area of development, improvement, verification and validation of codes and methods for VVER and PWR nuclear reactors applications. The overall objective is to strengthen the links among the CAMIVVER members and the international community enhancing the dissemination action. A mobility exchange programme has been elaborated as part of WP8 activities, and it is detailed in the “Manual for CAMIVVER Mobility Programme”. Unfortunately, to date, the COVID-19 pandemic has frozen all mobility exchange initiatives.

### 4. Status on Educations activities

Several Ph.D. works have contributed to the CAMIVVER activities. Three of them have provided presentations at the final workshop:

- UNIPI  
“Uncertainty Analysis in Support of NPP Safety Assessment”,  
PhD student Ossama Halim
- KIT  
“High-Fidelity Pin-by-Pin Analysis of the ROSTOV-2 Core Using SERPENT2-SUBCHANFLOW”  
PhD student Nuri Beydogan
- INRNE  
“Modeling of the processes in NPP in case of inter-system primary-to-secondary leakage”,  
PhD student Valentin Georgiev

Several Master works have contributed to the CAMIVVER activities. Three of them are related to WP4 activities:

- Framatome: Alessia Di Francesco “PERFORMANCE AND FUNCTIONAL ANALYSIS OF NEUTRONIC LATTICE CODES FOR NUCLEAR REACTOR APPLICATIONS”, 2021 – work in collaboration with University of Bologna (Italy).
- Framatome: Mathieu Robin “Développement d'une librairie Python pour la génération de géométries déstructurées d'APOLLO3 avec ALAMO S”, 2023 - work in collaboration with Université de Grenoble – PHELMA (France).
- Framatome: Fabio Inzirillo “Development of a Python library for generating unstructured geometries for reflector calculations”, 2023 – work in collaboration with Politecnico di Milano (Italy) and Polytechnique Montréal (Canada).

### 5. Status on Mobility Actions

No mobility action was implemented during the project. Initial plans were impacted due to the COVID pandemic.

## 6. Key Performance Indicators

Some key performance indicators have been defined for measuring the achievement of the objectives. Their progression is reviewed in Table 1.

Channels	Indicators	Progress review
<b>Website</b>	Number of page views	As of August 30 <sup>th</sup> , 2023 <ul style="list-style-type: none"> <li>4100 page views from the creation of the site: France 1669, USA 106, Bulgaria 319, Germany 677, Ukraine 167, Italy 266, China 53, Spain 52, India 17, Finland 64, Switzerland 34, Czech Republic 107, Austria 47, Russia 80, Sweden 116, United Kingdom 47, Hungary 58, Netherlands 31, Canada 44, Japan 42, Croatia 21.</li> </ul>
<b>LinkedIn</b>	<ul style="list-style-type: none"> <li>Number of views/interactions</li> <li>Number of followers</li> <li>Number of posts</li> </ul>	<ul style="list-style-type: none"> <li>About 285 views during the last 12 months</li> <li>89 followers</li> <li>6 during the last 12 months</li> </ul>
<b>Newsletters</b>	Number of subscribers	2 newsletters (11/2021 and 11/2022) There are presently 104 addressees
<b>Media</b>	Number of articles about CAMIVVER works	No identified article.
<b>Workshop</b>	Number of attendees	64 participants, see deliverable D8-4 for details.
<b>Events</b>	Number of conferences where CAMIVVER works have been shown	6 conferences <ul style="list-style-type: none"> <li>ICONE28 in August 2021</li> <li>FISA 2022 in May 2022</li> <li>NENE 2022 in September 2022</li> <li>VVER2022 in October 2022</li> <li>ICAPP in April 2023</li> <li>M&amp;C2023 in August 2023</li> </ul>
<b>Publications</b>	Number of papers published	10 papers <ul style="list-style-type: none"> <li>ICONE28 / FISA 2022 / NENE 2022 / VVER 2022/ ICAPP 2023 / M&amp;C 2023</li> <li>Annals of Nuclear Engineering</li> <li>Energies</li> <li>Académie Bulgare des Sciences</li> </ul>
<b>EU channels</b>	<ul style="list-style-type: none"> <li>Number of mentions</li> <li>Number of articles published about CAMIVVER works</li> </ul>	No identified mention.

**Table 1 – Key Performance Indicators**