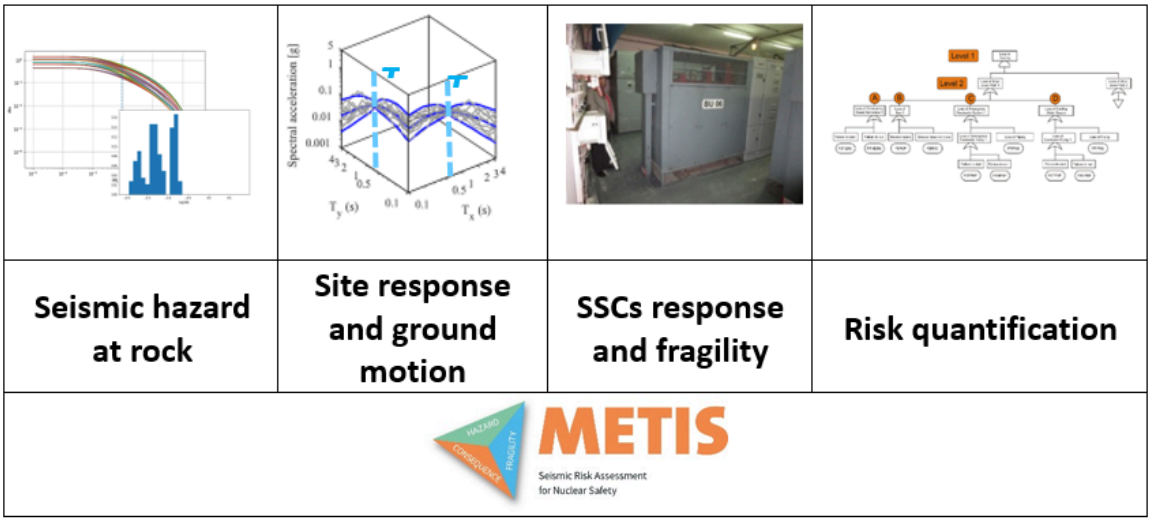
THE METIS PROJECT NEWSLETTER

FINAL EDITION

WELCOME TO THE FINAL METIS PROJECT NEWSLETTER

15.09.2025

Welcome to the last METIS newsletter! In this issue, explore the recent exciting updates, the resources that will remain available, key achievements, recent events, and a look back at our journey together.



As the EURATOM METIS project officially concluded in May 2025, we take this opportunity to update on the latest results and recent events and look back at our journey together.

METIS has focused on advancing methods and tools for seismic risk assessment of nuclear power plants – a critical area for ensuring the safety and resilience of nuclear installations. Thanks to the strong collaboration between academic and industrial partners from METIS consortium, the end users and the advisory board, the project has made significant progress in addressing complex scientific and engineering challenges.

We would like to warmly thank the broader community of scientists, engineers, and stakeholders who engaged with METIS through workshops, publications, and discussions. Your interest and active participation have been vital to the success and relevance of our work.

We hope that the results and tools developed within METIS will serve the community by supporting both current applications and future innovations. It is our sincere wish that the outcomes of METIS will not only be used by engineers and researchers today but will also pave the way for new opportunities and continued collaboration in the years to come. We look forward to the next chapters this work will inspire.

Thank you once again for being part of the journey.

Irmela Zentner (METIS Project Coordinator)

What's new?

Press Release

Here, you will find the final Press Release of METIS, marking the end of the five-year project. This Press Releases details the project's achievements, key outcomes, and the lasting impact of its work.

Read the Press Release

Introducing the METIS Glossary

This is a concise glossary for definitions of key terms used within the METIS project. This resource is designed to help better understand the project's concepts and terminology.

Discover the Glossary

Explore New Tools on OpenMETIS Gitlab

PyPSHATest – Toolkit for Probabilistic Seismic Hazard Model to Data Comparison

This toolkit leverages upon OpenQuake and offers a range of functions to help hazard modellers and engineering seismologists explore differences between models and data in greater depth, and to make these comparisons a convenient, transparent and reproducible process in probabilistic seismic hazard model development and application.

Fragility Regression Code

Python code and notebook to compute and plot fragility curves using the regression (cloud) analysis approach. This approach allows to determine lognormal fragility parameters and allows for an analytical expression of the fragility curve.

PRA Uncertainty Propagation Tool

The PRA tool provides a new calculation framework for Seismic PSA, based on SCRAM code for Boolean computations, on Andromeda software for fault trees and event trees definition and user interface, and on a tool developed in the frame of METIS project for managing and generating seismic data (fragility and hazard). Given the samples of basic events probabilities and the results of the Seismic PSA model in terms of cutsets, the tool computes the value of the Core Damage Frequency (CDF) for each sample.

OpenMETIS Gitlab Repository

Project Handbook

Developed within METIS, this is an essential guide to understanding and implementing the methodologies, technologies, and best practices from the project.

METIS Deliverables

Check out all of the public deliverables including project results, progress, achievements, and more, developed within the METIS project.

Project Handbook

METIS Deliverables

METIS on Zenodo

To discover the latest research data and publications, visit METIS on Zenodo and find the open-access resources.

METIS on Zenodo

METIS Publications

Explore the publications, published to journals and presented at conferences, on the METIS website.

Publications

Past Events

SMiRT28, Toronto, Canada

'Integrated approach to compute floor response and fragility including site response - implementation and lessons learned from METIS case study', presented by Irmela Zentner at the SMiRT conference on 11-15 August 2025.

In this contribution the integrated approach for seismic risk assessment implemented in the EURATOM METIS project was presented. Hazard is evaluated on outcropping rock or bedrock level and where the site response can be introduced in a graded framework by means of 1D or multidimensional (2D) site response analysis. Parametric and sensitivity analysis are carried out through METIS case study to assess the benefits and efficiency of

hazard consistent record selection on rock, the impact of ground motion scaling and the full integration of site response.

METIS Final Symposium

The METIS Final Symposium was held on 21 May 2025 at EDF R&D Lab in Paris. The day was host to over 80 attendees. The event presented METIS project's goals, outcomes, and lessons learned, including a deep dive into seismic hazard assessment, ground motion for engineering, and risk analysis in the context of nuclear installations.

Key highlights included:

- A look ‘Back to the Future’, recapping previous research before METIS and now seeing where we are with the impressive progress that has been made throughout the project and the METIS case study, opening the door for the next step in future research.
- Highlights include: earthquake catalogue declustering and aftershock hazard as well as simulation of region-specific ground motions at bedrock and selection of scenario ground motion for and the numerical computation of fragility curves. Insights into the performance of seismic Intensity Measures and the efficiency of PGA.
- Presentation of the practical new PRA tools, specifically SCRAM_NG & SCRAM++ and the considerations of aftershocks in seismic probabilistic risk assessment.
- A deep dive into the challenges of seismic hazard assessment for site evaluation of nuclear installations as well as concepts for maintaining a seismic PRA, looking beyond Euratom with insights from USA and Japan.

A big thank you, once again, to all the presenters and attendees for making the METIS Final Symposium a success! Read more here.

Access the photos

METIS Final Plenary Meeting and Site Visit to Flamanville

On 22-23 May 2025, the METIS Final plenary took place in Paris where the final project updates, latest research, and achievements were presented by consortium partners sharing their latest updates, research, and achievements. Consortium partners also took a trip to Flamanville NPP for a site visit to discover the two Flamanville reactors as well as the EPR for a truly inspiring day!




METIS Spring School

The idyllic island of Aegina played host to a productive and insightful METIS Spring School on 28-30 April, hosted by Dimitrios Vamvatsikos, Angeliki Gerontati, METIS consortium partners National Technical University of Athens (NTUA). The Spring School is part of the education and training under the METIS project to advance future research in the field of seismic nuclear safety. The School focused on bolstering nuclear safety through advanced seismic assessment, the event brought together leading researchers, students, docs, and postdocs braving the unusually cold Spring to foster new paths of knowledge.




Read the full article

A look back at the METIS plenary meetings over the years...

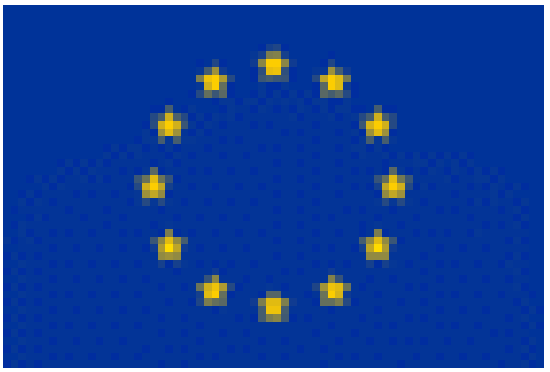




THANKS FOR READING!

DON'T HESITATE TO CONTACT US.

E-mail: contact@metis-h2020.eu
Website : www.metis-h2020.eu



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