Newsletter #2

August 2025

SIGMA3
Seismic hazard and Ground Motion Assessment

General Assembly and Deliverables Review Meeting

Highlights of the 2-days event in June 2025

The **first General Assembly**, gathering SIGMA3 stakeholders, took place in Espoo (Finland). This event was hosted by VTT, member of the SIGMA3 consortium and representative of the north-european organizations of the program. The Assembly aims at **sharing technical updates and at promoting collaboration** among all partners of the program. This was the first opportunity to bring together all scientific contributors, committees and leaders involved in the program.

We have also organized our **first Deliverable Review meeting.** 5 technical deliverables have been presented and were followed by **lively and high-level scientific discussions.** The audience, including members of our Scientific Committee, contributed to suggestions and perspectives to improve and extend these scientific outcomes.

A small poster session was also held in the venue to allow scientists to **display preliminary research results on several topics** and discuss a **large scope of topics related to PSHA and ground-motion studies**.

Key messages

SIGMA3 AS A CONTINUITY OF THE PREVIOUS WORK

5 DELIVERABLES REVIEWED

SCIENTIFIC DEBATES AND PROGRAM PERSPECTIVES

https://sigma-programs.com/

Newsletter #2

August 2025

ΣIGMA3
Selsmic hazard and Ground Motion Assessment

Argostoli: Dynamics and collaboration as a keystone

Where SIGMA3 research meets the reality

By Elias El Haber (EDF) and Fabrice Hollender (CEA)

Nestled on the western coast of Kefalonia Island in Greece, the Argostoli area has become one of the most important seismic test sites in Europe. Long recognized for its scientific potential due to its complex tectonic setting and high seismicity, the site gained increased international attention following the strong earthquakes of 2014 (Mw 6.1 and 6.0). These events accelerated and consolidated instrumentation efforts, leading to the deployment of the ARGONET array in 2015 as part of the SINAPS@ project.

Since then, **Argostoli has evolved into a uniquely well-characterized natural laboratory for studying ground motion, site effects, and seismic wave propagation**. The ARGONET experimental platform continues to be maintained and developed within the framework of the SEISM Institute by CEA and EDF.

Over the past decade, the site has been central to 14 peer-reviewed publications led by researchers from CEA (Commissariat à l'Énergie Atomique et aux Énergies Alternatives), ITSAK (the Greek Institute of Engineering Seismology and Earthquake Engineering), the University of Patras, ISTerre (University of Grenoble), EDF (Électricité de France), and others. These studies have explored a wide range of topics, including **3D geological modeling of the Plio-Quaternary basin, seismic wave analysis, spatial coherency of ground motion, and variations in seismic wave velocity**. The site also serves as a testbed for evaluating the performance of seismic sensors and the reliability of high-frequency ground motion recordings.

Argostoli's strategic importance has been further reinforced through its central role in the SIGMA research programs. During SIGMA2, the site was extensively used for doctoral and post-doctoral research, contributing to the development and application of advanced methodologies for seismic hazard assessment and site response analysis. **In the ongoing SIGMA3 program, Argostoli continues to serve as a shared application site across multiple work packages (WP1, WP2, and WP3), fostering interdisciplinary collaboration and methodological cross-validation**.

A non-exhaustive list of activities carried out at the site includes the **BENTO** and **OSCAR** benchmark exercises, the **argoSlab** experiments, **DAS (Distributed Acoustic Sensing) measurements**, and **nonlinear (NL) site characterization**, the **sensitivity analyses on earthquake localization techniques**, among many others. And if you're curious to dive deeper or stay in the loop, make sure to follow the latest updates and discoveries from the SIGMA3 program on LinkedIn or via our website !

SAVE THE DATE
SIGMA3 SYMPOSIUM

DECEMBER 4th, 2025

Location :
Renaissance Hôtel
Aix-en-Provence (FR)

Agenda

- Scope and objectives of the research program
- Talks on SIGMA3 actions on ground-motion and seismic hazard assessment
- Keynote lecture: *Lessons learned from the 2025 M7.7 Myanmar earthquake* (T. Ornthammarath)
- Poster session

Registration link:
https://forms.office.com/e/jEspyMqjRb

Newsletter #2

August 2025

ΣIGMA3
Seismic hazard and Ground Motion Assessment

Collaboration

/ **PhD candidate – CentraleSupélec, Saclay, France**
Seismic risk assessment of nuclear installations: improved seismic load definition by scenario spectra and validation by a virtual test lab

/ **PhD candidate – UCM, Madrid, Spain – January 2026**
Integrated lithospheric modelling of the thermal and rheological structure of France for probabilistic seismic hazard assessment

/ **PhD candidate (contact paola.traversa@edf.fr or vincent.pierron@cea.fr) – INGV (Istituto Nazionale di Geofisica e Vulcanologia), Milan, Italy – January 2026**
Towards improved realistic 3-components stochastic simulations

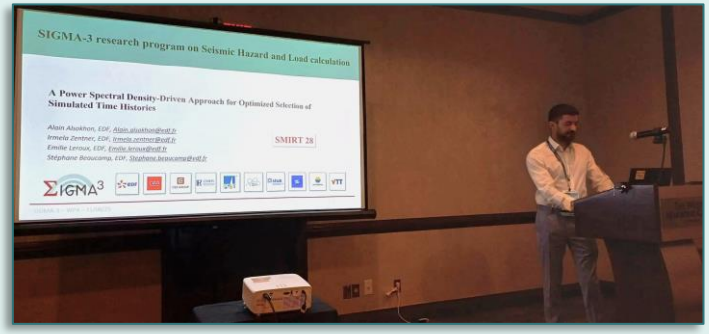
Feel free to click on the position to see more information !

Publications & Conferences

/ **SMIRT 28, Toronto – Alain ALSOKHON**

The effort done within the SIGMA3 program have been presented during the SMIRT 28 conference and the paper have been co-authored by two of our Work Package Leaders!

"A power spectral density-driven approach for optimized selection of time-histories"



/ **SSA (Seismological Society of America) 2025, Baltimore (Maryland)**

SIGMA3 poster available on our website under "SSA annual meeting 2025"

STAY TUNED!

Newsletter #3 in 2026