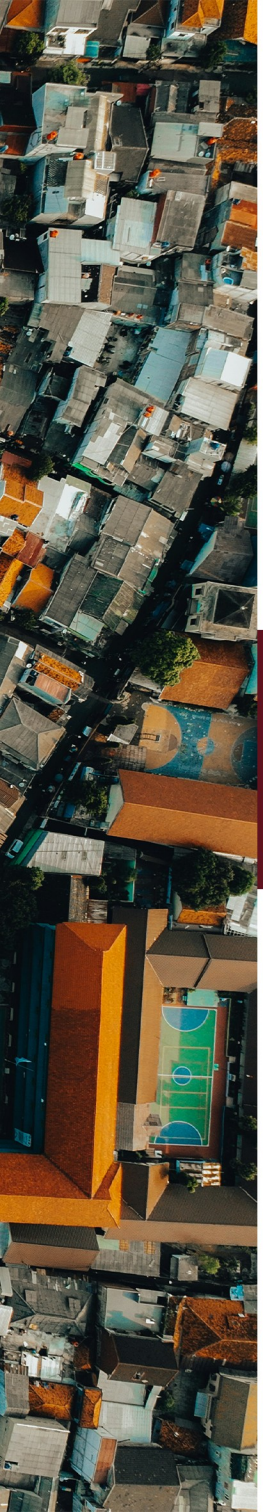


MINISYMPOSIUM

ADVANCING SEISMIC FRAGILITY AND VULNERABILITY MODELLING FOR REGIONAL RISK APPLICATIONS:

Development, Validation, and Tools

COMPDYN 2027 | 13-16 JUNE 2027 | CRETE, GREECE



ABOUT THE MINISYMPOSIUM

Large-scale seismic risk assessments depend on robust fragility and vulnerability models that can represent building damage and its economic and human consequences at the regional, portfolio level.

Recent advances in computational modelling, post-earthquake data collection, and statistical methods have significantly expanded the range and resolution of available models. Nevertheless, important challenges remain in uncertainty quantification, model validation, transferability across building classes and geographic regions, and implementation within regional and urban risk-assessment frameworks.

Exploring the
development, validation and application
OF SEISMIC FRAGILITY, VULNERABILITY AND CONSEQUENCE MODELS.

KEY AREAS OF FOCUS

MODELS & METHODS

Analytical, empirical and hybrid approaches for buildings, components and infrastructure systems.

FROM DAMAGE TO CONSEQUENCE

Approaches linking engineering demand and physical damage to economic, social, functional and environmental consequences.

VALIDATION & OPENNESS

Post-earthquake reconnaissance data, benchmarking and regional case studies, alongside open-access vulnerability modelling, FAIR principles and related software and toolkits.



GEM GLOBAL EARTHQUAKE MODEL OQ OPENQUAKE

TOPICS OF INTEREST

01

VULNERABILITY MODELING

Analytical, empirical and data-driven vulnerability models for buildings, components and infrastructure, for estimating casualties, economic losses, displaced population, downtime and business interruption;

02

CONSEQUENCE MODELLING

Consequence models addressing social, functional and environmental impacts;

03

DAMAGE DATA

Statistical methods for addressing gaps in empirical damage data and vulnerability;

04

EARTHQUAKE SEQUENCES

State-dependent models accounting for damage accumulation and pre-existing damage for earthquake-sequence risk applications;

05

UNCERTAINTY AND TRANSFERABILITY

Uncertainty quantification and propagation, model comparison, regional calibration, and geographic transferability;

06

VALIDATION AND BENCHMARKING

Validation against post-earthquake reconnaissance data and benchmarking studies;

07

OPEN PLATFORMS AND TOOLS

Open-source platforms and toolkits, including FAIR and open-access data/model initiatives;



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11th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering

13 - 16 June 2027
Mikis Theodorakis Conference Center,
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