37th General Assembly of the European Seismological Commission
ESC2021
Corfu, Greece
NEW DATES
19-24 September 2021

ESC IUGG IASPEI
HELLENIC REPUBLIC National and Kapodistrian University of Athens
ΙΟΝΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ

Session 24

Physical and statistical models and pattern recognition techniques applied to foreshocks, aftershocks and multiplets at different scales, from laboratory experiments to real-scale observations

Conveners:
Stefania Gentili[1], Rita Di Giovambattista[2], Filippos Vallianatos[3], Álvaro González[4]

[1] *Centro Ricerche Sismologiche, OGS, Italy*
[2] *INGV, Italy*
[3] *Department of Geophysics–Geothermics, Faculty of Geology and Geoenvironment, National and Kapodistrian University of Athens, Athens, Greece*
[4] *Centre de Recerca Matemàtica, Spain*

Seismicity can occur with great spatio-temporal variability, dominated by background activity or several kinds of earthquake clusters, from swarm-like to burst-like types. In many regions where complex fault systems exist, clusters are characterized by multiple mainshock sequences, with potentially large aftershocks. Foreshock occurrence is still poorly understood: some events are preceded by significant foreshock activity, while others occur suddenly. A persistent behavior of the seismicity and cluster properties has been observed in some seismotectonic areas. The increasing amount of earthquake data available on local to global scales provides new opportunities for model testing.

In this session, we invite researchers to present the latest results on physical and statistical models for foreshocks, aftershocks and multiplets, including experimental results based on laboratory experiments on rock fracture and friction, along with theoretical and numerical models, and methods for seismic hazard analysis related to the complex patterns of seismicity. Strongly encouraged contributions will be those dealing with spatio-temporal correlations, scaling laws and clustering, variations of seismicity style correlated to geological or tectonic characteristics, the emergence of seismicity patterns, and pattern recognition techniques applied to earthquake sequences.