



Session 27

Towards reproducible automated procedures for building uniform and compressive earthquake catalogues

Conveners:

Natalia Poiata¹, Tom Garth¹, Mihaela Popa²

¹ *International Seismological Centre, Thatcham, UK*

² *National Institute for Earth Physics, Romania*

The volume of seismic data that is managed by the national earthquake monitoring agencies has been consistently increasing throughout the past two decades. This trend is likely to continue due to the ongoing improvement of the national monitoring seismic networks. This increasing data availability allows a significant increase in the number of seismic events that are detected regionally and globally, but also comes with significant operational challenges that increase pressure on manual analysis routinely performed by earthquake monitoring agencies.

Both national and international seismic monitoring agencies have started implementing and applying automatic detection algorithms for a large range of processing steps from phase arrival picking and association, to focal mechanism calculation and routine kinematic slip model estimation for significant earthquakes. Although these automated processing schemes are extremely important and promising in the current data rich era of seismology, there is a need to quantify how reliable, reproducible and uniform these automated observations are.

In this session we invite presentations that give an overview of automated seismic waveform processing tools based on a wide range of techniques from advanced signal processing to machine learning and targeting routine data analysis (i.e., phase arrival time picking, amplitude measurements, event detection, focal mechanism determination as well as kinematic slip inversions), with particular focus techniques that can be implemented as robust and reproducible schemes by national earthquake monitoring agencies. We especially encourage contributions that address the issues of building uniform and compressive earthquake catalogues that can be extended to global scale observations.