



Session 08

Seismic arrival time determination: The reliability of established and innovative automatic picking techniques compared to manual picking

Conveners:

Thomas Garth¹, Thomas Meier², Kostas Lentas¹

¹ International Seismological Centre, Thatcham, United Kingdom

² Institute of Geosciences, Christian-Albrechts-Universität zu Kiel, Kiel, Germany

The amount of seismic waveform data that is openly accessible or available to national earthquake monitoring agencies has vastly increased in the past decade, a trend which continues thanks to the ongoing establishment and improvement of national monitoring seismic networks. This influx of data has hugely increased the number of earthquakes that are detected globally, but also presents challenges as this volume of data cannot be analysed and picked manually.

Increasingly therefore both national and international earthquake monitoring agencies have relied upon automatic detection algorithms to identify seismic arrivals and attribute them to a given seismic event. These automated picks are then reviewed and reported along with the associated earthquake locations by numerous earthquake monitoring agencies, with the majority of these observations being reported to and curated by International Seismological Centre (ISC, www.isc.ac.uk). This forms a key data set with the reported earthquake locations and seismic phases used in many areas of seismology including earthquake hazard, and seismic imaging.

In this session we invite presentations that give an overview of automatic picking techniques that are used systematically in seismic monitoring and earthquake detection, along with examples where automatic detections and picking are used. We also welcome submissions outlining new and improved techniques for earthquake detections and phase picking. Particularly we would like to encourage submissions that consider the impact of automatic arrival picking on the fidelity of the final results they inform.