



Session 24

Induced and triggered seismicity associated to technological activities

Conveners:

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The phenomenon of anthropogenic seismic activity represents an unwanted response of earth crust to the technological processes. With rising demands for energy and minerals this type of seismicity often appears in previously aseismic regions. The induced or triggered earthquakes accompany underground and open-pit mining, conventional and unconventional hydrocarbon production, reservoir impoundment, geothermal energy production, underground liquid and gas storage, including carbon sequestration, and many other technological processes that perturb the boundary conditions in the earth crust. The socio-economic impact of anthropogenic seismicity is very significant. On the one hand, strong induced or triggered earthquakes can cause substantial damage to industrial facilities and public or private infrastructure, and even casualties and fatalities. On the other hand, the hazards associated with anthropogenic earthquakes can often be overrated and vital technological activities can lose public confidence unless the accompanying seismic risks are accurately assessed and properly presented. Finally, earthquakes with debatable origin, whether natural or anthropogenic, pose questions that need to be answered with high certainty.

The goal of this session is to summarize the present state of knowledge about the seismicity associated with technological activities related to geo-resources exploration. We invite both cross-sectional multi-aspect theoretical, methodological and experimental studies, as well as interesting case histories linked to particular technologies. The session is meant, among others, to help in identifying common areas of seismic processes induced by different technologies. Contributions covering theoretical and experimental aspects of anthropogenic seismicity at multiple spatial and temporal scales and addressing its predictability and controllability are especially welcome.