



Land Subsidence: Triggers and Monitoring

Land subsidence occurs at various scales, ranging from meter-sized sinkholes to large depressions hundreds of meters long, to much wider-scale subsidence zones. The processes involved are solutional and mechanical removal of subsurface material, at varying rates depending on the rock solubility and hydro-mechanical conditions. Whether subsidence can be monitored and predicted both in time & space, strongly attracts current research foci, as it influences the hazard and damage that this phenomena can produce. Triggers of subsidence, whichever scale, are still poorly understood and range from hydro-mechanical processes, over earthquakes, storm surges and wave actions, over human influence such as mining and water management. Often subsidence may occur as or trigger secondary hazards such as landslides and rock-falls, so multi-cascade events are also common.

Due to the variety of the relevant deep, near-surface and surface processes and the background conditions, not a single method stands out for monitoring subsidence. In fact, a multi-method approach is necessary to answer questions related to triggers, monitoring and early-warning. This session aims to bring together researchers working across all scales of subsidence science. We hence invite contributions from different geoscientific fields and different methodological approaches, such as (but not limited to) remote sensing, AI-supported methods, GNSS, field-surveys with geological mapping, hydrogeophysics, seismological observation and numerical modeling.

Conveners:



Djamil Al-Halbouni
Leipzig University,
Germany
dhalbouni@uni-leipzig.de



Mahdi Motagh
GFZ Potsdam &
University of Hannover,
Germany
mahdi.motagh@gfz.de



Constantinos Loupasakis
National Technical
University of Athens,
Greece
cloupasakis@metal.ntua.gr



Mario Parise
University of Bari, Italy
mario.parise@uniba.it



Osman Orhan
Mersin University,
Turkey
osmanorhan@mersin.edu.tr