

Impact of the hydrological cycle in the corridors of altered rocks of the Grands Causses region based on GNSS and InSAR measurements



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Context

Caves of the the Grands Causses plateaus (southern Massif Central) form by regressive erosion of altered rocks (e.g. Malcles et al. 2020, Malcles et al. 2023). The aletered zones not yet connected to the active vadose and phreatic conduits act as water reservoirs but little is known on the impact of the hydrological cycle in these reservoirs.

Scientific challenge: can we measure ground deformation related to the charge and discharge of water in aleterd rock corridors? Can we use the ground deformation signal to estimate the water ressource in the altered corridors?



Methods

The scientific approach will combine ground deformation estimation using InSAR with the EGMS products and GNSS measurements from lowcost GNSS receiver newly installed on the plateau and numerical models to simulate the ground deformation related to the hydrological cycle in the altered rock corridors.



Expected results

Science: increased understanding and knowledge on the atered rock corridors in limestone plateau and their impact on the hydrological cycle.

Society: inputs for water magement and resilience.

References

Malcles et al. (2023): https://doi.org/10.5194/egusphere-2023-765 EGMS: https://egms.land.copernicus.eu