

# Developing a 3D data model for geohazard assessment in a former uranium mining site.

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The study provides new information about the most important risks inside and surroundings area of a former uranium mining site (northern part of Avram Iancu mine - Romania). A 3D model was developed for assessing slide, flood, erosion, subsidence, groundwater contamination hazard. This model is usable for geospatial analysis, being able to provide the necessary data about the relationship between various geological, geotechnical, hydrogeological, geophysical, parameters involved in radioactive contamination specific processes and synergy of natural and man-made induced phenomena (landslides, mining subsidence, etc.). This model is a continuous evolved one that brings together geological data from 2D and 3D representations, underground and surface mining architecture, geospatially defined in situ sampling data, environmental and geomorphology data about the mining and surroundings areas. The most important parts of this methodology that we've pointed by using 3D modeling techniques are: Observation, Integration, Infrastructure and Geospatial analysis. Observation tasks require measurements of geological, hydrogeological, geophysical, geochemical processes that are at the origin of geohazards. Integration focuses on the processing required changing data, measurements especially, into information that can be used by the model. Infrastructure means the database architecture and techniques used for the storage and dissemination of data while the geospatial techniques provide the visual representation of modeled phenomena in static and dynamic state. The main objective of this 3D model is application for mitigation geohazard processes, but further on is a support for numerical modeling of various contaminant transports in groundwater and surface water systems, surface stability due to mining subsidence and numerical analysis of contaminated dumps slope stability and prognosis of erosion processes.