



Relationships between rock mass properties of gypsum and dolin formation

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Gypsum covers approximately 5% of territory of Turkey, and the largest distribution of gypsum is observed in the Sivas basin. In this region, the massive gypsum covering a large area is karstified and many sinkhole and large - small scale dolines can be observed. In this study, formation mechanisms, geomorphic characteristics of the dolines which are formed in gypsum rock mass in the Sivas (Turkey) basin were investigated, and relationships between rock mass properties with formation mechanisms and geomorphic characteristics were explained. According to the results of this study, discontinuities in gypsum rock masses were evaluated as "close spacing", "moderately wide gapped structure" and "very low - low persistence" in general. The dolines in the study area are mainly concentrated in rock mass region where spacing and aperture of discontinuities are low. However dolines in the region where the higher values of aperture and spacing can be observed, but those are different than the others by means of their morphometric properties. However the most of dolines (low depth, polygonal-shaped, gentle slopes) were observed in locations having very low joint persistence, very deep and circular dolines having very steep slopes were generally observed in areas where the joint persistence is high. It was also found that the long and short axes of dolines are generally compatible with of dominant trends of discontinuities in gypsum rock mass.