**Investigation in terms of soil characteristics of Inandik (Cankiri,Turkiye) sinkholes due to gypsum karstification**

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|  **Abstract**Sinkholes are karstic landforms that are formed as a result of the collapse of the ceilings of underground cavities, which are formed as a result of the interaction of groundwater with soluble rocks. The sudden occurrence of collapse makes these formations dangerous. Many buildings can be damaged due to sinkhole formations, and they can become unusable on lands that are a source of livelihood for the local people [1]. In this study, we investigated the sinkhole formations around Inandik village of Çankırı. When these sinkhole formations are considered in terms of the geology of the area, it is understood that they occurred as a gypsum karst. Since gypsum dissolves faster in water than carbonate rocks, it poses a greater risk. The structural damages in the region were observed with the field investigations [1]. In addition, discontinuous gypsum units were observed in field studies and classified as extremely wide and void structures according to ISRM [2]. When the boreholes drilled in the study area were examined, it was understood that there were molten gypsum layers underground [1,3]. Point loading test was carried out with the samples taken by opening research pits in the gypsum units and it was observed that the rock had very low resistance [1]. By considering the microtremor measurements made at 28 points in the study area, the dominant vibration period and ground amplification values ​​were reached [3]. As a result, it was determined that the sinkholes formed around Inandik village were caused by the deformation and dissolution of the gypsum units.  |
| Keywords: Sinkhole, Gypsum karst, Soil characteristic, Cankiri |

**References**

 [1] Yıldız, M. S. (2022). Investigation of Cankiri Inandık village sinkhole disasters in terms of soil characteristics. Cankiri Karatekin University, 84p.

 [2] ISRM, 2007. The complete ISRM Suggested Methods for Rock Characterization, Testting and Monitoring: 1974-2006. Suggested Methots Prepared by the Commission on Testing Methods, ISRM, R. Ulusay and J.A. Hudson (eds.), Compilations Arranged by the ISRM. Turkısh National Group Ankara, Kozan ofset; 628 p., Turkey.

[3] Özçelik, A., Yiğit, A. E., Işık, B., Arıtürk, M. A., Özen, Ö. and Büyükurvayli, B. 2016. Determination of karstic cavities and sinkholes by geophysical methods: Inandık Village Application, in Keskin, İ., and Göloğlu, C., eds., Proceedings of International Symposium on Natural Hazards and Hazard Management, 543−549.