

III. INTERNATIONAL ISTANBUL SCIENTIFIC RESEARCH CONGRESS

January 8-10, 2021 / Istanbul



CONGRESS ABSTRACT BOOK

EDITORS

Rina DEMJAHA

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ISBN: 978-625-7720-16-8
ISPEC PUBLISHING HOUSE

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TC. MINISTRY OF CULTURE AND TOURISM PUBLISHER LICENSE NUMBER: (2021/.....)
TURKEY

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ISPEC PUBLISHING HOUSE - 2021©

Release date:18.01.2021

ISBN – 978-625-7720-16-8

**PRESENT-DAY SURFACE DEFORMATION ON THE SOUTHEASTERN EDGE OF THE
KARAPINAR (SULTANIYE) GRABEN (SIYEKLIK-KARAPINAR / KONYA)**

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ABSTRACT

In this study, surface faulting and surface fissures developed due to land subsidence in the northeast of the Karapınar (East Konya, Central Anatolia) basin were investigated. Widespread surface deformation structures were encountered in the west of Siyeklik, 10 km northeast of Karapınar (Sultaniye). Plio-Quaternary Karapınar graben was formed as a result of movements of NNE-SSW trending Seyithacı and Nasuhpınarı Fault Zones. The eastern edge of the Karapınar graben is delineated by the Nasuhpınarı Fault Zone. The western part of the basin has subsided along the main fault surface dominantly dipping to the northwest. Surface faulting and surface fissures developed both parallel and obliquely to the main fault as a result of land subsidence due to the declining of groundwater table in the region. In the west of Siyeklik Settlement, numerous surface faulting and surface fissures developed along a 2.5 km long and 550 m wide zone parallel to the Nasuhpınarı Fault Zone. The width of the surface fissures reach up to 0.5 m. A vertical ground movement of approximately 3 m is observed along the surface faulting. Small scale graben and horst structures were formed in this zone. Again in the same section, there are NW-SE trending surface faulting parallel to the approximately NWW trending faults. The length of this surface faulting is 750 meters and there is a 2 meter vertical ground collapse along the surface faulting. The surface faulting has been caused damage to roads and structures. According to the calculations made due to the displacement of the wall of a building, it was determined that the average vertical subsidence in the region since 2012 was around 4.25 cm/year. Most of the relatively small diameter sinkholes in this region were formed where the surface faulting are present. It is observed that the surface faulting continues in the basin sediments parallel to the fault scarps up to 7 km southwest.

Key words: *Land subsidence, Karapınar Graben, surface faulting, Nasuhpınarı Fault Zone.*