

Title: Use MODIS satellite data to study new phenomena of underground fire in the Al Ruhban oasis in Al Najaf city, Iraq

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Abstract: On 15 August 2010, a phenomenal underground fire was experienced for the first time in the western province of Al Najaf in Iraq. During the incidence, longitudinal cracks and small holes were observed in the ground emitting white smoke. These cracks and emitted smoke extended and were observed up to over 5,000 m² of space. These observations continued from 15 August to 30 October 2010. In this study, the authors investigated the possibility of thermal jump in the studied area during the observation period using MODIS data. Here, MODIS data detected two significant thermal activity jumps in the study area from 15 August 2010 to 27 September 2010. The result further indicated that the combustion process in the Al-Ruhban area is likely due to natural causes, combustion of hydrocarbon gases emitted or leaked from oil pools; and these fires may continue to incandescent and slow creep until the end of the source material causing fire or facing hard groundwater levels.