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**AN OVERVIEW THE 2017 JULY 20 MW 6.6 BODRUM–KOS  
EARTHQUAKE BY MEANS OF GEODETIC  
AND GEOPHYSICAL DATA ANALYSES**

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**ABSTRACT:**

This investigation aims providing an overview the strong Bodrum-Kos Earthquake, which was occurred in 20<sup>th</sup> of July 2017 at 22:31 UTC, having Mw 6.6. The displacements were analyzed using the 6 days' data (as 3 days before and after the earthquake), recorded at the 11 continuously operating GNSS stations in the region. Depending on the static and kinematic processes of the GNSS data at these 11 stations, using internet based data processing services that are namely the OPUS, CSRS-PPP and MagicGNSS, the co-seismic displacements and velocities were obtained and interpreted. The analyses were carried out using the North, East, Up coordinates in a local geodetic system referring the initial solutions of the first observation day, hence the change in the 3D position components in the local system were investigated with the graphs and the horizontal and vertical velocity vectors.

Beside the static and kinematic processes of the GNSS data at reference stations, the data from the Turkey National Strong Motion sensors network data-base (Bodrum KYH station) were obtained and used for interpreting the co-seismic displacements and velocities obtained from the geodetic evaluations. In order to analyze the significant change at the sea level during the earthquake, and to analyze the tsunami because of the occurred strong motion, the sea level

observations at the Bodrum tide-gauge station, obtained from TUDES in 30 second sampling records were investigated and modelled. All the numerical results obtained from the analyses were relatedly interpreted and hence outcomes regarding to the character and effects of strong motion from geodetic and geophysical perspectives were shared.

In this study, the data from various institutions and private companies, which are namely General Directorate of Land Registry and Cadastre (TKGM), General Command of Mapping (HGK), Earthquake Department, European Mediterranean Seismology Center (EMSC), Kandilli Observatory and Earthquake Research Institute (KOERI), Disaster and Emergency Management Directorate (AFAD), Turkey National Sea Level Monitoring Service (TUDES), United States Geological Survey (USGS), National Oceanic and Atmospheric Administration (NOAA), Natural Resources of Canada (NRCan), National Observatory of Athens (NOA), GEOTeknik South GNSS Company, HEPOS, NOANET, URANUS, METRICANET, were used. Herewith each data provider institution and company is acknowledged.

**KEYWORDS:** GNSS, Bodrum-Kos Earthquake, Strong Motion Sensors, sea level change, Deformation, Turkey.

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