Boğaziçi University
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2 July 2025 (13:57)
M4.4 Gemlik-Bursa Earthquake

Rapid Assessment of Strong Ground Motion Based On the Istanbul Earthquake Rapid Response System (IERRS) Recordings

02.07.2025 (v1), Istanbul

Magnitude : M_L4.4

Epicenter : 40.4597° N / 29.1982° E

Depth : 7.5 km

This report presents bias adjusted ground shaking maps based on the recorded data by the Istanbul Earthquake Rapid Response System (IERRS) (https://eqe.bogazici.edu.tr/en/istanbul-earthquake-rapid-response-and-early-warning-laboratory). The maps for the spatial distributions of PGA, PGV and instrumental intensity are provided. Bias correction graphs comparing the recorded and estimated ground motion values at each station are also given.

SPATIAL DISTRIBUTIONS OF THE STRONG GROUND MOTION

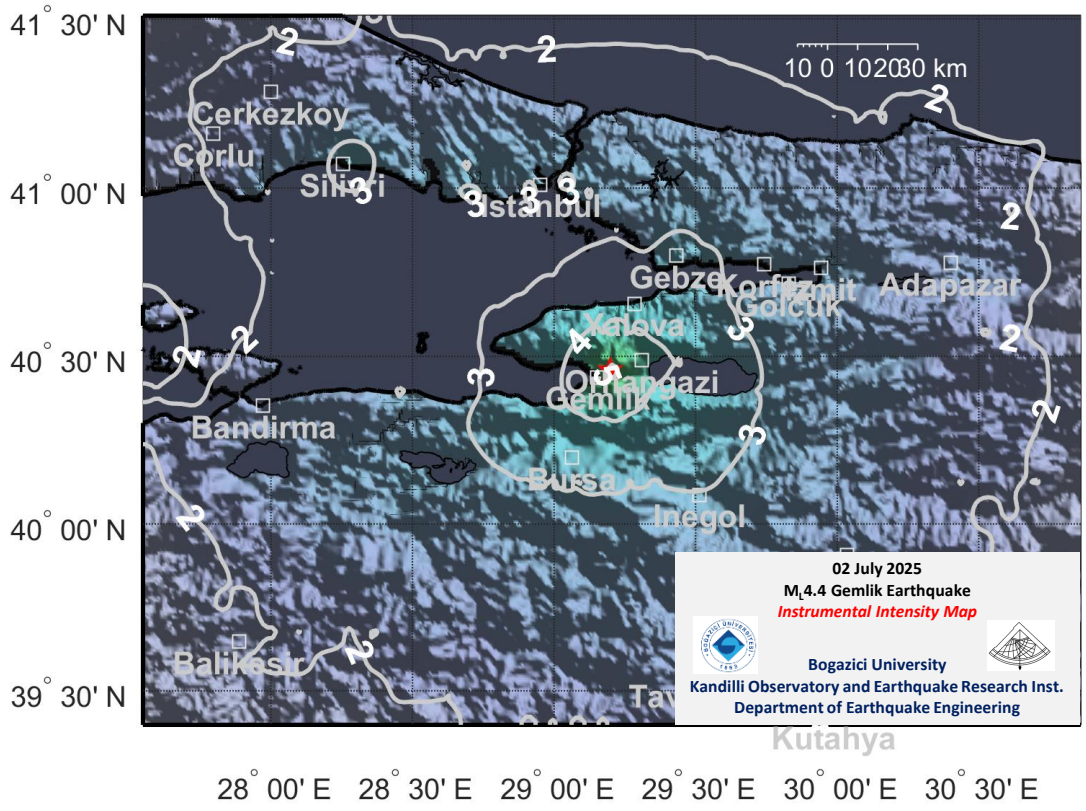


Figure 1. Instrumental intensity (MMI) (AK2007)

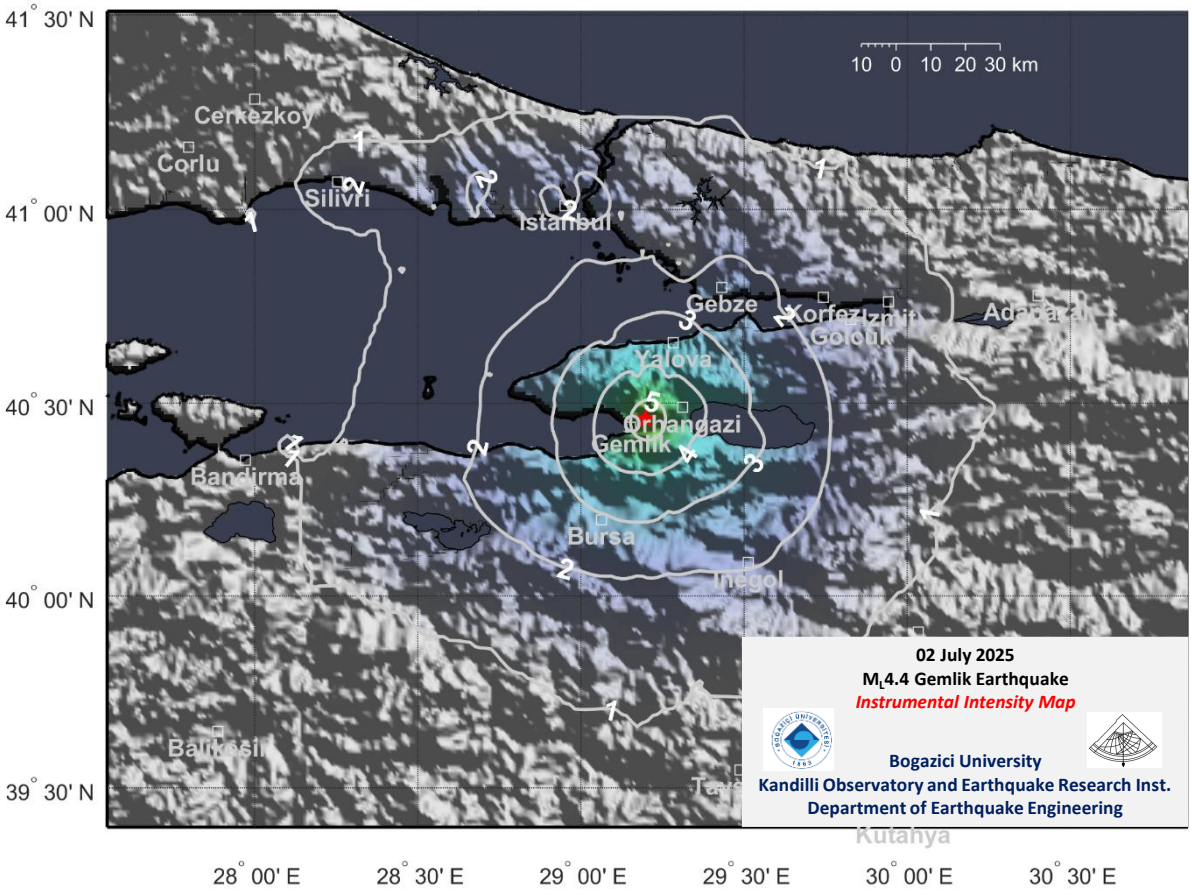


Figure 2. Instrumental intensity (MMI) (WQHK1999)

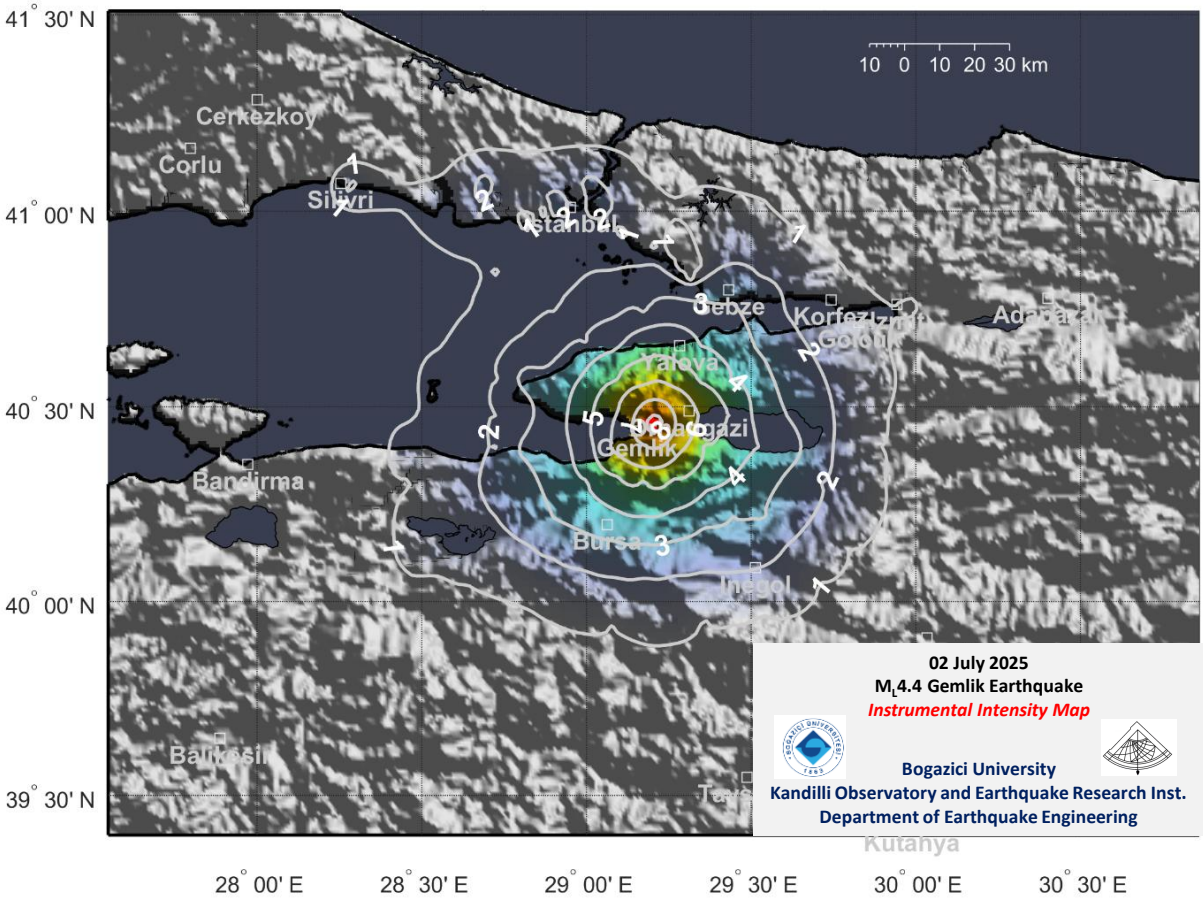


Figure 3. Instrumental intensity (MMI) (BA2014)

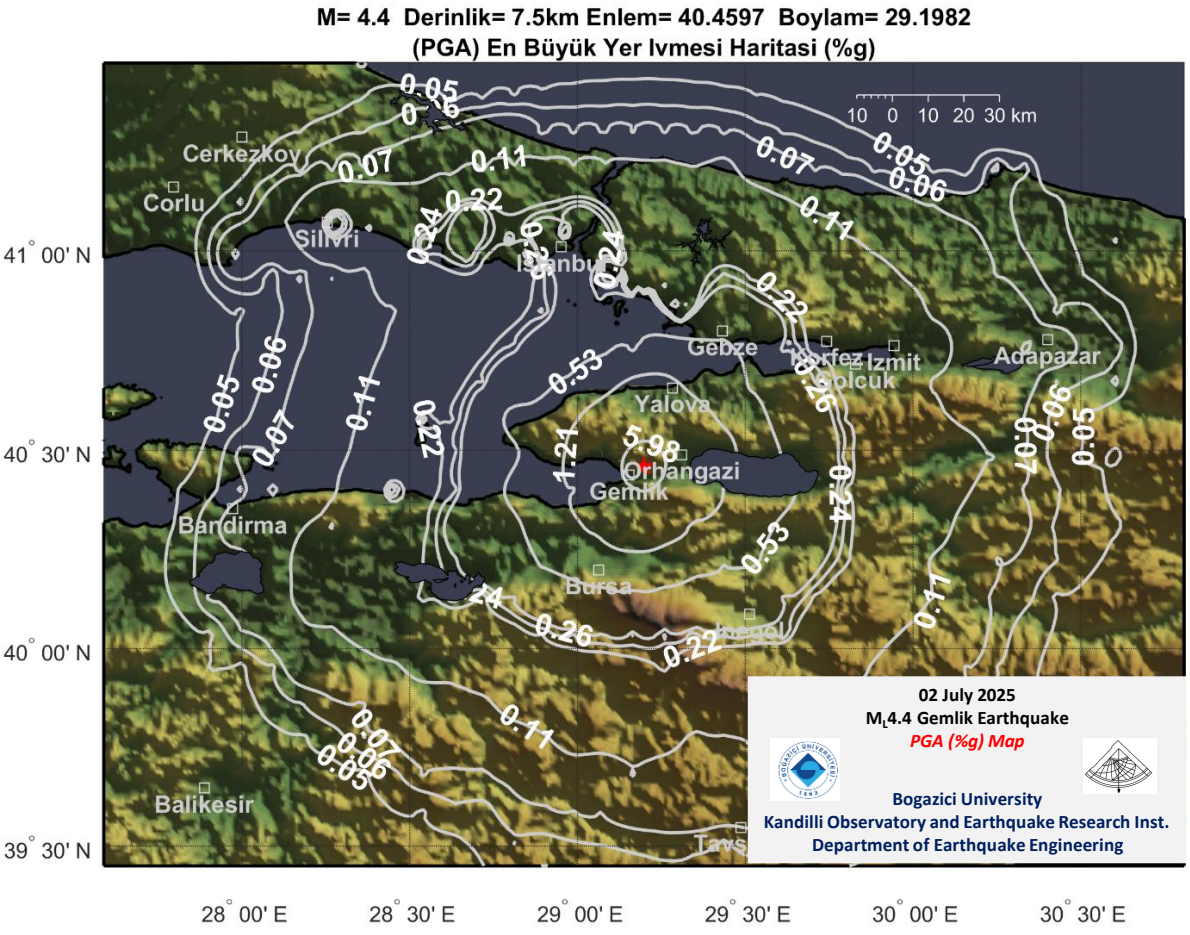


Figure 4. Peak ground acceleration (PGA, %g)

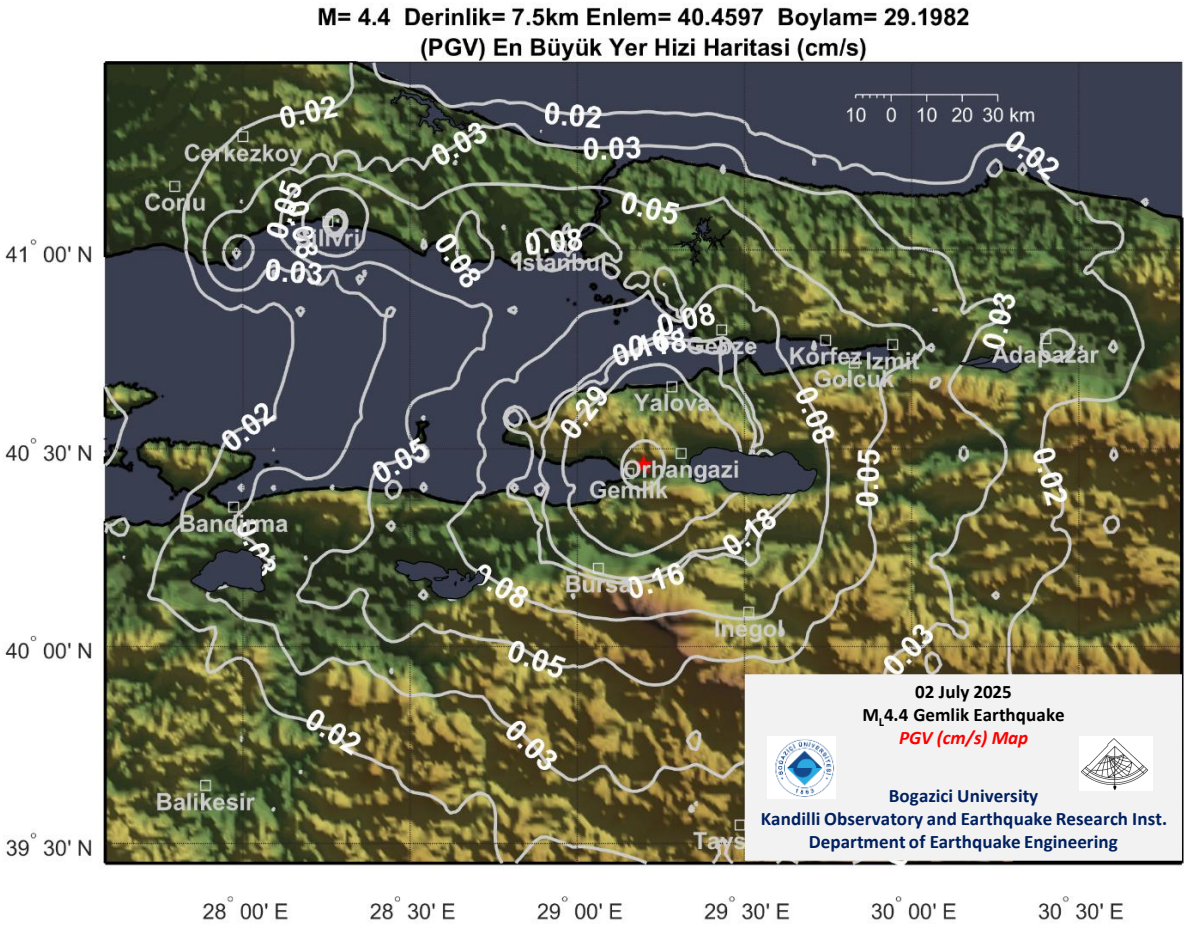
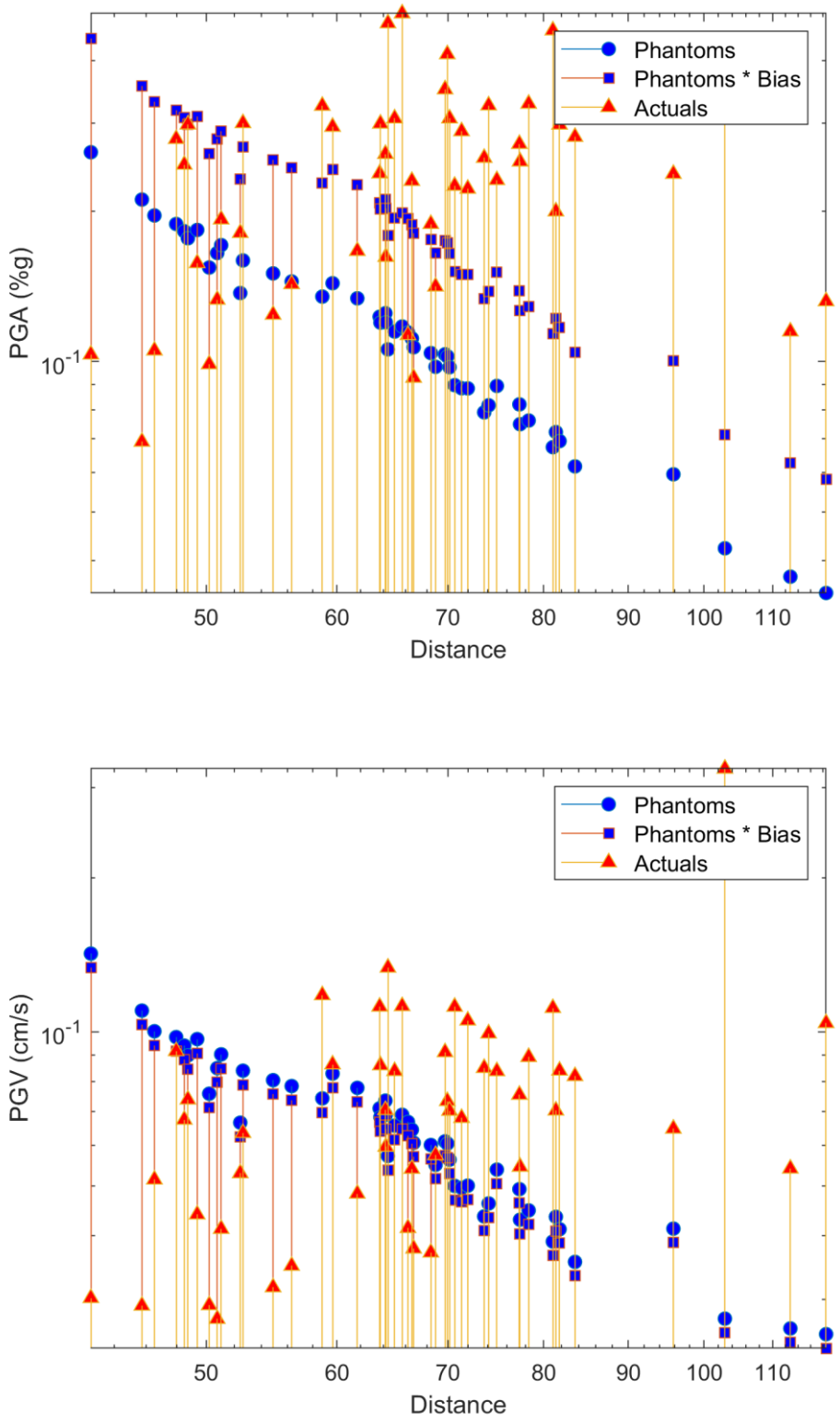


Figure 5. Peak ground velocity (PGV, cm/s)



(Actuals: Recorded values, Phantoms: Estimated values)

Figure 6. Bias correction of the PGA and PGV values estimated with the GMPE (CY14) based on the recorded values

REFERENCES

ELER: Earthquake Loss Estimation Routine, https://eqe.bogazici.edu.tr/en/eler-methodology-and-software

AK2007 - Gail M. Atkinson; and SanLinn I. Kaka (2007). Relationships between Felt Intensity and Instrumental Ground Motion in the Central United States and California,Bulletin of the Seismological Society of America (2007) 97 (2): 497–510.

BA2014 - M. Bilal and A. Askan (2014). Relationships between Felt Intensity and Recorded Ground-Motion Parameters for Turkey,"Bulletin of the Seismological Society of America , 104(1).

CY2014 - Chiou, Brian S.-J. et al. Update of the Chiou and Youngs NGA Model for the Average Horizontal Component of Peak Ground Motion and Response Spectra. Earthquake Spectra (2014),30(3): 1117.

WQHK1999 - Wald, D. J., V. Quitoriano, T. H. Heaton, H. Kanamori (1999). Relationship between Peak Ground Acceleration, Peak Ground Velocity, and Modified Mercalli Intensity for Earthquakes in California, Earthquake Spectra, Vol. 15, No. 3, 557-564.