

**STRUCTURE OF THE CAMPANIAN PLAIN  
BY USING AN ANALYSIS OF BOUGUER GRAVITY ANOMALY**

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A new Bouguer gravity map of Campanian Plain (Southern Italy) was obtained utilizing 17648 gravity readings at grid stations covering the area with a density of one station per square kilometre. We assumed for the Bouguer and terrain corrections an average density for the outcropping rocks of  $2400 \text{ kg/m}^3$ . The Bouguer anomalies exhibit positive values from the eastern margins of the Tyrrhenian basin to the Apennines and negative values in the eastern foredeep, ranging from -40 to 110 mGal.

The geological interpretation of the Bouguer anomalies was acquired by employing 2-D and 2.5-D models of several profiles with different strikes chosen according to the principal structural features of the investigated area. The models were constrained by the data from deep wells in the area drilled for oil and geothermal research. Moreover, a 3-D model was employed taking into account the results obtained with the 2-D and 2.5-D models. All these models suggest that the basement (density  $2600 \text{ kg/m}^3$ ) is strongly displaced with different offsets. It outcrops at the margins of the Campanian Plain with limestone reliefs and sinks under unconsolidated sediments of the alluvial plain and in the sea to a depth of 2-3 km. The overall thickness of this layer ranges from 7 to 11 km. At this depth is located the transition to a layer with a density of  $2700 \text{ kg/m}^3$ , which extends for a thickness of 15-16 km up to the Moho discontinuity.

The two-dimensional and three-dimensional models show a good reliability with respect to the geological setting and the geodynamics of the region. Moreover, in the volcanic areas (Ischia, Phlegrean Fields, Vesuvius) the Bouguer anomalies show a strict correlation with shallow structures.