



## **Gravimetric study of the Khemis Miliana plain (Upper Cheliff basin): Structure of the transition zone between the Cheliff and Mitidja basin (North of Algeria)**

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The Neogenic Khemis Miliana plain is located in the North of Algeria and is known as being a vast depression, covered by alluvial quaternary deposits. It corresponds to an elongated East-West structure of about 80 km long and 35 km wide. Khemis Miliana plain is bordered at the North by the “Dahra” and “Zeccar” mountains, which are constituted by allochthonous Cretaceous and Upper Oligocene allochthonous formations; at the South, it is limited by the “Ouarsenis” mountains, composed by Lower Jurassic and Cretaceous allochthonous formations. From stratigraphical sequence of the Cheliff basin, this plain is constituted by Mio-Plio Quaternary deposits overlaying a basement formed by thrust sheets with Mesozoic series. This work leads to establish a new structural image of the Khemis Miliana plain, by the use of different processing methods applied on gravity data. This allows to identify the anomalies causative structures and lineaments and to understand the connection between the Cheliff and Mitidja basins.

In the present study, new gravimetric data were acquired from September 2016 to April 2018, carried out along the Khemis Miliana plain. A total of 1536 gravity stations, spaced by about a 1 km were measured using a terrestrial LaCoste Romberg D220 gravimeter. These data were tied to CRAAG- Bouzareah absolute gravity via references points situated in the study area. The Bouguer anomaly map of the upper Cheliff basin shows two main distinguished domains. The first set of positive anomalies in the North, corresponding to Boumaad Mountain and Dahra massif. The second set of negative anomalies in the South corresponding to upper Cheliff basin. The analysis and modeling of the gravimetric data illustrate the faults and lineaments both near surface and at depth by using different processing methods of gravity field interpretation (gradients, upward continuation, Euler deconvolution, wavelet transform ...). The identified axes are oriented NW-SE westernmost, and NE-SW at the east. The basin is not flat and its thickness is about 3.5 km at mean.