

Investigation of the inner structures of N'ait N'Aït El Haj and Hebri's maars (Middle-Atlas volcanic zone, Morocco): high resolution gravity data

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The processing of gravimetric data acquired in 2015 on the two maars N' Ait El Haj and Hebri allowed us to calculate the Bouguer anomaly. Regional trends were extracted to obtain the residual signals related to two volcanic edifices. The maxima of the horizontal gradient of the residual anomaly and its upward continuation show faults, contacts and their dips, subsequently confirmed through the Euler deconvolution. These results revealed the deep structures that have favored the drainage of the magma flow towards the surface. The modeling of the subsurface based on the interpretation of the residual signal made it possible to clarify the mechanisms of emplacement of this maars through complex interactions between the magmatic rise and the tectonic activation of a strongly karstified limestone basement.

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