

= 0, a moving Window Size (WS) of  $11 \times 11$  (grid points) cells and a tolerance of 15%. The analysis of Energy Spectrum (ES) allowed the identification of three cut off frequencies related to the change of spectrum slope; the first one is characterized by short-wavelength: Depth (Z) < 2.65 km, the second one is characterized by a middle-wavelength:  $2.65 \text{ km} < \text{Depth (Z)} < 7.14 \text{ km}$ , and the last one is characterized by long-wavelength: Depth (Z) > 7.14 km. The depths deduced by the Euler's solutions, is close to the results of the Energy Spectrum inversion. The outcomes of this work indicate that, the deepest Euler solutions corresponds to the East-West Shear zone. These latter are vertical according to ITA method.

**Keywords:** In Ouzzal terrane, Bouguer anomaly, gravity data, 3D Euler Deconvolution, Improved Tilt Angle and Energy Spectrum.

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## Possible occurrence of CAMP primitive rocks in the Tindouf basin (southwestern Algeria)

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Primitive mafic rocks are of primary importance to constraint mantle source compositions and to modeling magma evolution processes. These rocks are thought to be generated by partial melting of a mantle source without modification by crystal fractionation, contamination or accumulation. Primitive mafic rocks are characterized by high MgO (or Mg#), Ni, Cr and Co contents. However, these values should be considered with caution as they can also represent cumulates of mafic minerals such as olivine and pyroxene. Range expected for magmas in equilibrium with their mantle source are: MgO : 10-15 wt%, Ni : 200-500 ppm and Co : 50-70 ppm (Merle et al., 2014).

In some Large Igneous Province, primitive rocks are very scarce such as in the case of the Central Atlantic Magmatic Province (CAMP), where they represent 2-3% of the several hundreds of CAMP analyzed rocks (Marzoli et al., 2018). In southwestern Algeria, intrusive CAMP magmatism extends into the main sedimentary basins of the area, occurring as sills, dykes and scarce pipes within Neoproterozoic to Paleozoic strata of the Tindouf, Reggane and Hank basins (Chabou et al., 2010). In the northern flank of the Tindouf basin, these rocks were recently studied in detail using remote sensing techniques, geochemistry and geochronology (Chabou et al., 2010; Bersi et al., 2021; Hachemaoui et al., 2022). These studies in particular emphasized the possible existence of CAMP sill located within the Hassi Mahmoud anticline, displaying primary magma characteristics. The primitive geochemical composition of this sill has never been observed before among CAMP tholeiites of Northwest Africa. However, this conclusion was done on the basis of geochemical analysis of two samples. In this study, we have undertaken systematic sampling of the Hassi Mahmoud sill which extends some 25 km long and 3 km wide, intruding the Famennian shales of the Hassi Mahmoud anticline. In addition, we have sampled a few-meter-wide doleritic

dyke that crosscuts the area. The first part of this study presents the results of remote sensing techniques [band ratios, color composites and principal component analysis (PCA)] applied to Landsat 8 OLI images of the Hassi Mahmoud area. These results show that the spectral response of Hassi Mahmoud sill is quite different from that of other CAMP sills of the northern flank of the Tindouf basin. Furthermore, natural color image of the sill highlights their dark green to black color, which is characteristics of highly mafic rocks. In the second part of this study, we investigated the mafic rocks of Hassi Mahmoud sill by petrography observation. These rocks consist of coarse-grained dolerites, displaying ophitic texture with poikilitic clinopyroxene including laths of plagioclase. In addition, these dolerites are rich in olivine, in contrast to other CAMP dolerites of the northern flank of the Tindouf basin, which are rather poor in this mineral. Furthermore, the abundance of olivine phenocrysts in Hassi Mahmoud dolerites is in accordance with their primitive nature. Geochemical and mineralogical studies of about fifteen doleritic samples, representative of the whole Hassi Mahmoud sill and dyke outcrops, are in progress.

**Keywords:** CAMP - Tindouf basin - Hassi Mahmoud sill - Primitive mafic rocks - Petrographic analyses.

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## **Les ostracodes des dépôts lacustres holocènes de Daeit El Mahouche (Grand Erg Occidental, NW du Sahara Algérien) et reconstitution paléoenvironnementale**

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Une des buttes témoins des dépôts lacustres holocènes (inférieur et moyenne) de la dépression interdunaire de Daeit El Mahouche (bordure Nord-Ouest du Grand Erg Occidental) a fait l'objet d'une étude lithologique et micropaléontologique (ostracodes).

Cette butte témoins d'épaisseur dépassant les 2 m, repose sur des sables jaunes grésifiés et constituée globalement de trois (03) ensembles : 1) des calcaires beiges (30 cm) riches en gastéropodes (*Hydrobia*) passant à des calcaires argileux verdâtres (10cm) et renfermant quelques coquilles de bivalves (*Cerastoderma*) ; 2) calcaires beiges à *Hydrobia* surmontés par des calcaires argileux grisâtres (15cm d'épaisseur) riches en coquilles de *Cerastoderma* ; 3) le tout est couronné par un troisième ensemble de 25 cm de calcaires blanchâtres diatomiques et de calcaires argileux à *Cerastoderma*.

L'analyse micropaléontologique a révélée 10 espèces d'ostracodes réunies en 8 genres et 02 espèces de foraminifères. L'étude quantitative et qualitative des ostracodes a mis en évidence trois assemblages : un assemblage de