

The Precambrian of the Reguibat Shield (West African Craton, Southermost Morocco): Petrology, Geochemistry and Geochronology

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Since the studies of Spanish geologists on southernmost Morocco (1940-1970) yielding to the discovery of Bou Craa phosphates in 1945, to the first geological map 1/200000 of Sahara and two monographs by Alia-Medina (1952, 1954, 1958) and a revision paper of his student Arribas (1968), this region remained unstudied because of military conflicts until recently. The national program of cartography started by the Moroccan Ministry of Geology by early 2000 and the exploration works conducted by ONHYM geologists encouraged several geologist teams from European and Moroccan universities to invest this region and to conduct a series of modern studies on its formation. Up to now, interesting results on this part of the West African Craton (Reguibat Shield) and adjacent Ouled Dlim Massif, commonly assumed as Mauritanides extension in Morocco, are being published and the knowledge of the geological history of this part of the West African craton is being considerably improved.

The Precambrian rocks of the Moroccan sector of Reguibat are mainly TTGs dated at 3.0 Ga (Montero et al. 2014); these were intruded at 2.46 Ga by an ultrapotassic peculiar magmatism (Awwerd syenites group, Bea et al, 2013, 2014; Haissen et al., 2017), and at 1.85 Ga by a carbonatitic magmatism (Montero et al. 2016) and finally at early Cambrian 525 Ma by peralkaline hypersolvus granites (Bea et al., 2016). The distribution of the Precambrian cratonic rocks, generally assumed to be limited only to the east of Ouled Dlim massif, is now extend to the west under this massif and some recent formations of the Atlantic passive margin as attested by new geochronological studies (Bea et al., submitted; Montero et al, submitted). More information on this Precambrian cratonic rocks and subsequent intrusion events is expected from the future study of the easternmost outcrops near the Algerian border.

References

- Alía Medina, M., 1954. Sobre la existencia de formaciones de hammada neógena en el Sahara Meridional Español. (Arch. I. E. A.», 29, 49 (1954c).
- Alía Medina, M., 1958. Esquema geológico del Sáhara Español 1:2.000.000. I. E. A. Madrid.
- Alia Medina, M., 1960. La tectónica del Sahara Español. *Proceedings from 21th International Geological Congress*, Norden Copenhagen, pp.193-207.
- Arribas, A. 1968. El Precámbrico del Sahara español y sus relaciones con las series sedimentarias más modernas. *Boletín Geológico y Minero*, 79, 445-480.
- Bea, F., Montero, P., Haissen, F., Molina, J. F., Michard, A., Lazaro, C., Mouttaqui, A., Errami, A., Sadki, O. 2016. *Gondwana Research*, 36, 423-438.

- Montero, P., Haissen, F., El Archi, A., Rjimati, E., Bea, F. 2014. *Precambrian Research*, 242, 112-137.
- Montero, P., Haissen, F., Mouttaqui, A., Molina, J. F., Errami, A., Sadki, O., Cambeses, A., Bea, F., 2016. *Gondwana Research*, 38, 238-250.
- Villeneuve, M., Gärtner, A., Youbi, N., El Archi, A., Vernhet, E., Rjimati, E.C., Linnemann, U., Bellon, H., Gerdes, A., Guillou, O., Corsini, M., Paquette, J.L., 2015. *Journal of African Earth Sciences*, 112, 451-470.