

New zircon U-Pb ages of the Imiter granitoids (Saghro massif, eastern Anti-Atlas, Morocco): Geodynamic implications

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At the Northwestern edge of the West African Craton (WAC), the Imiter inlier in the eastern part of the Anti-Atlas exhibits a large range of Neoproterozoic granitoids. The Igoudrane massif, Bou Teglimt granodiorite and Bou Fliou granite crosscut the flysch-like unit related to the Saghro Group. In this study, we present new zircon U-Pb ages on these three massifs, obtained by SHRIMP at IBERSIMS laboratory in Granada University. The geochronological results give 582 ± 6 Ma for the Bou Fliou granite and 567 ± 6 Ma for the Bou Teglimt granodiorite; the ages obtained on the Igoudrane quartz-diorite (540-585 Ma) are considered to correspond to both the age of emplacement (540 Ma) and inherited zircon grains from the surrounding rocks (e.g. Bou Fliou granite).

These new data reveal that the Igoudrane Complex is younger than previously reported (Schiavo et al., 2007). Accordingly, all the granitoids of the Imiter area are Ediacaran in age and belong to the Ouarzazate Group. The Igoudrane massif, which was assumed until now as Cryogenian in age and coeval to the major Pan-African event in the Anti-Atlas, is actually Ediacaran. In addition, the present ages offer a maximum age (585 Ma) for the Saghro Group, in the Imiter inlier. In fact, the age and geodynamical context of the Saghro Group basement is still debated, from Cryogenian to Ediacaran times (Liégeois et al., 2006; Abati et al., 2010).

Our geochronological data reveal also the presence of inherited zircons of Neoproterozoic to Paleoproterozoic ages (2500 - 1900 Ma). These results confirm the existence of an Eburnean cratonic basement beneath the eastern Anti-Atlas, and therefore confirm that the northern border of the WAC must be placed further north, as suggested previously (Ennih and Liégeois, 2001; Gasquet et al., 2008).

The geochemical and isotopic data of the Imiter granitoids (Baidada et al., 2017) are reinterpreted on the basis of these new radiometric ages in the post-collisional Pan-African context of the Anti-Atlas range during the late Neoproterozoic times.

References

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