

## **Geochemistry and Nd Isotopes of the Post-Collisional Granitoids from the Aouzioua - Lac Ifni Area, Anti-Atlas (Morocco)**

**A. Toummite<sup>1</sup>, M. Ikenne<sup>1</sup>, J.P. Liegeois<sup>2</sup>, D. Gasquet<sup>3</sup>, and E.H. Beraaouz<sup>1</sup>**

<sup>1</sup> LAGAGE, Faculté des Sciences, B.P. 8106 Agadir – Maroc

<sup>2</sup> Isotope Geology, Royal Museum for Central Africa, B-3080 Tervuren, Belgium

<sup>3</sup> EDYTEM, Université de Savoie, F 73376, Le Bourget du Lac Cedex, France

In the “Lac Ifni-Aouzoua” area, located in the western part of the Siroua Mountains, plutons ranging in composition from granite, diorite and granodiorite intruded at a shallow level the subcontemporaneous volcanic and volcanoclastic rocks of the Ouarzazate Group. This volcanic-plutonic event between 580 and 545 Ma represents the largest igneous activity in the Anti- Atlas.

The Aouzioua – Lac Ifni granitoids and the associated mafic rocks, which can be considered as members of a single suite related by a crystal fractionation process, belong to a high-K calc-alkaline series. Coupled with the transtensive environment demonstrated for this period of time in the Anti-Atlas (Gasquet et al., 2005), this composition points to a typical postcollisional setting (Liegeois et al., 1998). The geochemical subduction-like signatures have to be ascribed to their source and are not determining the actual setting.

The granitoids and the associated rocks have clearly positive  $\epsilon_{\text{Nd}}-570$  Ma between +4 and +5 and young NdTDM between 610 and 790 Ma. This signature impose a juvenile source, either a lithospheric mantle metasomatized during the preceding Pan-African subduction period (750-660 Ma Siroua – Bou Azzer oceanic complex; Thomas et al., 2001; Samson et al., 2004) or a lower mafic crust derived from the latter. This is new in the Anti-Atlas where other contemporaneous postcollisional high-K calc-alkaline granitoids from Saghro in the eastern Anti-Atlas have negative  $\epsilon_{\text{Nd}}$  (Errami et al., 2006; Ikenne et al. 2007). The location of the Aouzioua – Lac Ifni close to the South Atlas fault, the northern boundary of the West African craton (Ennih and Liegeois, 2001) allows probably this juvenile source to be expressed without a WAC contamination, which is the case in Saghro.

Key words: Neoproterozoic, Anti-Atlas, granitoids, post-collisional, juvenile source.