

# Zircon U-Pb geochronology, geochemistry and Sr-Nd isotopes of the post-collisional A type-granites from the Zenaga, Kerdous and Bas- Drâa inliers (western Anti-Atlas, Morocco)

MOHAMED OUGADIRE<sup>1</sup>, FATHA ASKKOUR<sup>2</sup>,  
ALEXIANE FAVIER<sup>3</sup>, MEHDI OUSBIH<sup>4</sup>, MOHA IKENNE<sup>5</sup>  
AND YVES GÉRAUD<sup>6</sup>

<sup>1</sup>faculty of sciences, Ibn Zohr university

<sup>2</sup>Ibn Zohr university

<sup>3</sup>Lorraine university

<sup>4</sup>Faculty of Science, Ibn Zohr University, Agadir, Morocco

<sup>5</sup>Faculty of Science, Ibn Zohr University, Agadir

<sup>6</sup>Géoresources, Lorraine University

Presenting Author: mohamed.ougadire@edu.uiz.ac.ma

In the Southwestern domain of the Moroccan Anti-Atlas belt, three distinct late Ediacaran granites have been investigated: the Sidi El Houssein ring, Tafraout pluton and Taourgha batholith located, respectively, in Zenaga, Kerdous, Bas Drâa inliers. U-Pb zircon data obtained by SIMS yield the following ages:  $584 \pm 2.29$  Ma/  $579 \pm 3.83$  Ma for Sidi El Houssein granite (Zenaga Inlier),  $581 \pm 2.05$  Ma of Tafraout granites (Kerdous inlier) and  $588 \pm 2.67$  Ma for the Taourgha intrusion (Bas-Drâa inlier). Geochemically, these pink granites display high SiO<sub>2</sub> contents that range from 69.19 to 77.3 wt. %. They are mainly peraluminous to weak metaluminous and high-K calc-alkaline with LILE (Rb, K, Th) and HFSE (Ta, Zr, Hf) enrichment, with depletions in Ba, Nb, Sr, and Ti. These rocks have relatively high zircon saturation temperatures (700–900°C), high Zr + Nb + Ce + Y contents >350 ppm), and  $10,000 \times$  Ga/Al ratios > 2.6 that are typical of A-type granites. Isotopic compositions show that the granitoids have variable (<sup>87</sup>Sr/<sup>86</sup>Sr)<sub>i</sub> ratios (0.67–0.73),  $\epsilon_{\text{Nd}}(t)$  values (-2.9 to -7.63) and  $T_{\text{DM}}$  model ages of 1.49 to 2.53 Ga suggesting that they were derived from the partial melting of a continental crust with moderate mantle contribution. These granitic intrusions are subcontemporaneous to the widespread volcanic and volcano-detrital rocks from Ouarzazate Group (580–545 Ma), marking the post-collisional transtensional period in the Anti-Atlas. All these data provide evidence of an emplacement of these late Neoproterozoic granitoids during a transtensional regime due to an asthenosphere upwelling that follows the lithospheric delamination related to the collapse of the Panafrican belts.