

2012),ii) the last Ediacaran compressional event during the final phase of the Pan-African deformation can be dated before 550 Ma, iii) the 550 Ma age marks the beginning of Late Ediacaran transtensive tectonics in the Imiter inlier, iv) this latter regime evolved into pure extensional regime during the earliest Paleozoic times.

Keywords : Late Neoproterozoic; Imiter; tectonic control; geodynamic implication; Saghro massif; Eastern Anti Atlas; Morocco

References

Errami and Olivier. 2012, JAES. 69 ; Thomas et al., 2002 Pr. Res. 118; Soulaïmani and Hefferan. 2017, Géologues, 194; Walsh et al., 2012, Pr. Res. 216-219; Soulaïmani et al., 2014, JAES. 98; Pouclet et al., 2018, IJES; Cerrina et al., 2009, IJES. 99. Benziane et al., 2008, feuilles 1/50000 Qal'at Mgouna et Sidi Flah, N&M 468bis et 467bis. Hindermeyer, 1953, CRAS 237.

New U/Pb and Ar/Ar geochronological data on the Tafilalt magmatic complex (Eastern Anti-Atlas, Morocco)

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The Tafilal region extends at the junction between the Ougarta and Anti-Atlas Paleozoic mountain belts. The Tafilalt magmatic complex (TMC) outcrops mainly in the southern Tafilalt sub-basin and consists as sills, dykes and laccoliths, intruded into Ordovician to Early Carboniferous formations. These bodies are made of olivine dolerites, kaersutite lamprophyres, gabbros and syenodiorites. They have an alkaline affinity (Pouclet et al., 2017; Najih et al., 2018).

However, the age of these rocks remained uncertain and raised a debate since no isotopic dating had so far been made. In the geological map of Morocco, scale 1:200,000, sheet Tafilalt-Taouz (1986) they are noted as Triassic-Liassic dolerites, and thus linked to the magmatic intrusions of the Central Atlantic Magmatic Province (CAMP). Pouclet et al. (2017) with lack of geochronological data suggest two magmatic events, in late Famennian-Tournaisian and in the early to late Visean for the TMC. Najih et al. (2018) stressed out with field proves that the mafic rocks of Tafilalt cannot be structurally linked to Devonian-Carboniferous event. Likewise they cannot be associated geochemically with the CAMP (Chabou et al., 2017a,b; Najih et al., 2018). In order to give a precise age to the TMC; two methods were adopted, i.e., ⁴⁰Ar/³⁹Ar dating on biotite and ²⁰⁶Pb/²³⁸U on zircon. The results of biotite dating give a Capitanian to Wuchiapingian age (with plateau ages; 264.16 ± 2.72 Ma, 262.61 ± 4.5 Ma and 259.04 ± 6.31 Ma) (Chabou et al., 2018). At the same time, the results

on zircons show a Wuchiapingian age (255 ± 3 Ma). The two geochronological methods thus match around the same age corresponding to the Late Permian.

In North Africa and Western Europe, most of the Permian magmatism occurred during the Cisuralian (Autunian) and shows calc-alkaline affinities (Bonin, 1972; Broutin et al., 1994; Youbi et al., 1995; Lago et al., 2004). Late Permian alkaline magmatism have been only recorded locally in the Moroccan Meseta (Aït Chayeb et al., 1998; Bouloton et al., 2019) and the Iberian Meseta (Scarrow et al., 2006; Esteve et al., 2014). The Permian event was named by Bonin et al., (1987) as the Alkaline Magmatic Province of the Western Mediterranean recorded in Eastern Europe, West and Northwest Africa. The TMC as all these Late Permian rocks would represent precursors of the CAMP event during the progressive extension of the thickened Variscan lithosphere and before the break-up of Pangaea.

Keywords: Anti-Atlas, Tafilalt, Magmatism, Pb-U dating, Ar/Ar dating, Permien

Pétrologie et géochimie du volcanisme basique Ediacarien des boutonnières d'Ait Sawn et de Tissouktai (Anti-Atlas Oriental, Maroc).

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Au Sud-Est d'Ouarzazate (Sud-Ouest du massif de Saghro, Anti Atlas), affleurent les formations géologiques d'Ait Sawn et de Tissouktai. Ces dernières, attribuées à l'Ediacarien (Ou Néoprotérozoïque terminal), sont constituées de volcanites basiques (Andésites basiques) qui s'organisent en coulées successives, dont l'étude pétrographique révèle l'existence de plusieurs faciès.

Les roches étudiées présentent les caractéristiques géochimiques des suites volcaniques calco-alkalines des sites orogéniques, qui sont caractérisées par un enrichissement en éléments incompatibles avec des spectres de terres rares fractionnés (fort rapport LREE/HREE), et un enrichissement en LILE (K, Rb, Ba) par rapport aux HFSE (Nb, Zr). La signature orogénique calco-alkaline que portent ces andésites basiques pourrait être attribuée à une fusion partielle d'un manteau en contexte extensionnel par un héritage d'une subduction antérieure.

Mots-clés : Anti-Atlas, Ediacarien, calco-alkalines, orogéniques.

Did pulses of the Central Iapetus Magmatic Province (CIMP) both trigger and end the c. 580 Ma Gaskiers Glaciation ?

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