

New $^{40}\text{Ar}/^{39}\text{Ar}$ dating on biotites from Aderba granite gneiss, Golpayegan metamorphic complex (Sanandaj-Sirjan Zone), Central Iran

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The Aderba granite gneiss as part of metamorphic complex in the Sanandaj-Sirjan Zone, composed mainly of quartz, K-feldspar, plagioclase and biotite as the dominant ferromagnesian mineral. Zircons concordant U-Pb age indicating a Neoproterozoic protolith [1]. The Golpayegan metamorphic complex, high grade metamorphic rocks, is generally bounded by normal faults [3]. New incremental heating $^{40}\text{Ar}/^{39}\text{Ar}$ age determinations on biotite separates are presented here. Biotite from the Aderba Granite gneiss yielded concordant age plateaux at 60.9 ± 0.4 Ma. The $^{40}\text{Ar}/^{39}\text{Ar}$ ages in accord with K-Ar ages of 60 ± 0.9 Ma [4]. The shapes of the release spectra and the similarities between plateau and integrated ages are not compatible with loss of Ar by partial resetting. Therefore, the flat spectra either reflect rapid cooling through the closure temperature of biotite or complete rapid resetting [2]. The similarity between the K-Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ ages would suggest that the dates indicate complete resetting. These data constrain the subsequent cooling path, ~ 300 °C, in Paleocene times for this Neoproterozoic granite gneiss and described the effects of an important post-Cretaceous extensional event proposed by [3] [5].

[1] Hassanzadeh et al. (2008) *Tect.* **71–96**. [2] Johnson et al. (1997) *J. Pet* **38(11)** 1585–1611. [3] Nadimi & Nadimi (2008) *Geol. Sci. Am.* **444** 105-122. [4] Rachidnejad-Omran et al. (2002) *Com. Ren. Geo.* **334** 1185-1191. [5] Tillman et al. (1981) *Am. Ass. Pet. Geo. Bul.* **65** 674–687.