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Geochronology and isotope geology of the Late Neoproterozoic granitic and gneissic rocks of the Neybaz complex (West of Saghand)

S.A.A. Asadi, Gh. Ghorbani*, H. Shafaii Moghadam

School of Earth Sciences, Damghan University, Damghan, Iran

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Abstract: Neybaz igneous and metamorphic complex (west of Saghand, North Yazd) is one of the Late Neoproterozoic Iranian basement terrains which include a wide variety of igneous and metamorphic rocks. Some parts of metapelitic outcrops of this complex can be considered typical evidence of partial melting, migmatitization and mylonitization. The obtained ages of the complex and the adjacent complexes (such as Chapedony, Tashk and Zaman Abad), based on K-Ar, Rb – Sr, Sm-Nd and U-Pb methods, show several ages ranging from Late Neoproterozoic to Miocene. But the presence granitic and gneissic pebbles bearing conglomerate which originated from basement of the Lower Cretaceous sedimentary sequence of the southwest of Saghand indicate that age younger than Cretaceous which attributed to Neybaz complex are not correct. Some of the reported ages are only reflected the tectonomagmatic or tectonometamorphism events which affected these crystalline basement complexes during different times, such as Middle Jurasic metamorphism and Eocene to Miocene magmatism activities. Based on the regional evidence and field relationships, the range of 570 to 530 Ma is more consistency with actual regional geology. The events happened during this time, most likely related to Cadomian orogenic evolutions. Hafni isotopic investigations on granitic rocks of this complex indicate that the εHf of the studied rocks show negative values and varies from -1.02 to -18.87. The negative εHf values correspound with originating of granitic melt from crustal rocks or the same gneissic rocks of Neybaz complex (west of Saghand).

Keywords: *Dating; Neoproterozoic; Hf; Granite; Gneiss; Neybaz; Saghand.*

*Corresponding author, Tel: 09128322758, Fax: 02335220991, E-mail: ghorbani@du.ac.ir

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