

Zoning and chemistry of garnets in eclogites and blueschists in ophiolitic complex of eastern Birjand: An evidence for subduction process in eastern Iran

G. Fotoohi Rad¹, S. Amini²

1-Department of Mining Exploration , Faculty of Engineering , Birjand University, Birjand , Iran.

2- Department of Geology , Faculty of Sciences ,Teacher Training University of Tehran, Iran.

E-mail: gfotoohi@yahoo.com

(Received: 24/4/2007 , in revised form: 19/11/2007)

Abstract: The ophiolitic complex of eastern Birjand consists of various rocks of a complete ophiolitic complex. Except for basaltic pillow lavas which are changed to metabasites such as eclogites and blueschists under metamorphic conditions, all other rock types of an ophiolitic complex could be seen in this sequence. Chemistry of garnets and their zoning patterns indicates the occurrence of subduction in the study area. The presence of the low-temperature and medium-temperature eclogites in the study area also may show the collision process between Lut and Afghan Blocks which has occurred after the subduction process. This collision process has lead to the occurrence of medium-temperature eclogites in response to the increase of temperature in the study area and then uplifting of the eclogitic rocks during the emplacement of area ophiolite in the suture zone between Lut and Afghan Blocks.

Keywords: *Birjand, Ophiolitic complex, Garnet Zoning, Eclogites and Blueschists, Subduction.*