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Structural control on overprinting high-sulfidation epithermal on porphyry mineralization in the Chodarchay deposit, northwestern Iran

Narges Yasami, Majid Ghaderi, Saeed Madanipour, Behzad Taghilou

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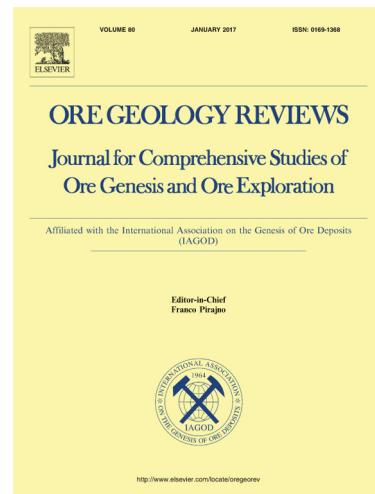
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1   **Structural control on overprinting high-sulfidation epithermal on porphyry mineralization**  
2   **in the Chodarchay deposit, northwestern Iran**

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4   Narges Yasami <sup>a</sup>, Majid Ghaderi <sup>a\*</sup>, Saeed Madanipour <sup>a</sup>, Behzad Taghilou <sup>b</sup>  
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6   <sup>a</sup>*Department of Geology, Tarbiat Modares University, Tehran, Iran*  
7   <sup>b</sup>*Department of Environmental Sciences, University of Zanjan, Zanjan, Iran*

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9   \* Corresponding author. Telefax: +98 21 8288 4406.  
10   E-mail address: mghaderi@modares.ac.ir (M. Ghaderi).

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12   **ABSTRACT**

13   The Chodarchay high-sulfidation epithermal-porphyry deposit is located in the Tarom volcano-  
14   plutonic subzone of Western Alborz structural zone in NW Iran. In addition to Chodarchay, the  
15   Tarom subzone hosts several other epithermal deposits. Lithologic units in Chodarchay consist  
16   of volcanic-pyroclastic rocks and intrusive bodies. Petrographical studies have identified  
17   different rocks which host the mineralization. Mineralization has taken place in both volcanic-  
18   pyroclastic units and intrusions. Detailed mineralogical and alteration data gathered from drill  
19   cores and thin sections provides support for the hypothesis that the high-sulfidation epithermal  
20   mineralization is underlain by a porphyry copper system. This deposit is the first reported  
21   porphyry-epithermal mineralization in this subzone. The main structure of the Chodarchay area  
22   is a fault zone that formed parallel to the general Tarom NW-SE direction. Based on remote  
23   sensing studies, on a wider scale, lineaments generally show NE-SW trends, but the Chodarchay  
24   fault zone has a NW-SE strike and is associated with another W-E trending fault zone. These  
25   fault zones are correlated with argillic alteration. There are two sets of reverse fault fractures  
26   with a strike-slip component, based on slickenlines in the field and core observations. A normal  
27   sense of fault movement remains in the NW part of the structural system. These new data sets  
28   indicate two main extensional and compressional mechanisms for the fault. The evolution of the  
29   fault system from normal to reverse in the deposit characterizes the present day structural system  
30   of the Chodarchay area. Plutonism and porphyry mineralization are related to the extensional  
31   stage, whereas the epithermal part of the deposit is associated with the compressional stage of  
32   fault activation.

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34   **Keywords:** Remote sensing; structural control; overprinting; Chodarchay deposit; Tarom; Iran.

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