

Postcollisional Age of the Kumtor Gold Deposit and Timing of Hercynian Events in the Tien Shan, Kyrgyzstan

JINGWEN MAO,[†]

*Faculty of Geosciences and Resources, China University of Geosciences, Beijing 100083, China, and
Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China*

DMITRY KONOPELKO,

*Geological Faculty, St. Petersburg State University, 7/9 University Embankment, St. Petersburg 199034, Russia, and
Centre for Russian and Central Asian Mineral Studies, Department of Mineralogy, Natural History Museum,
Cromwell Road, London SW7 5BD, United Kingdom*

REIMAR SELTMANN,

*Centre for Russian and Central Asian Mineral Studies, Department of Mineralogy, Natural History Museum,
Cromwell Road, London SW7 5BD, United Kingdom*

BERND LEHMANN,

*Institute of Mineralogy and Mineral Resources, Technical University of Clausthal,
Adolph-Roemer-Str. 2a, 38678 Clausthal-Zellerfeld, Germany*

WEN CHEN,

Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China

YITIAN WANG,

Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China

OLAV EKLUND,

Department of Geology, University of Turku, 20014 Turku, Finland

AND TOORAT USUBALIEV

Kumtor Operating Company, 24 Ibraimov Street, Bishkek 720031, Kyrgyzstan

Abstract

We report here $^{40}\text{Ar}/^{39}\text{Ar}$ whole-rock and sericite data for host-rock (sericite-quartz altered rock) and gold ore (pyrite-quartz-feldspar-carbonate) from the giant Kumtor gold deposit in the Tien Shan fold and thrust belt of Kyrgyzstan, one of the largest orogenic gold belts on Earth. Plateau ages for whole-rock samples of sericite-quartz altered rock and sericite-bearing gold ore are 285.5 ± 1.2 and 288.4 ± 0.6 Ma. Sericite concentrates gave plateau ages of 284.3 ± 3.0 (host rock) and 285.4 ± 0.2 (ore) Ma.

The age of mineralization is slightly younger than a U-Pb zircon age of 296.7 ± 4.2 Ma obtained for the postcollisional Djangart granite, about 80 km southeast of Kumtor, and slightly older than two published U-Pb ages of 268 ± 1 and 280 ± 9 Ma on a postcollisional granite intrusion about 10 km west of Kumtor. These ages also overlap with data from the other major gold deposits of the 2,000-km-long southern Tien Shan fold and thrust belt. The ages define a late Paleozoic event of gold mineralization related to regional-scale fluid flow and granite magmatism controlled by transcrustal shear zones during the postcollisional stage.

[†] Corresponding author: email, jingwenmao@263.net