



16TH BIENNIAL MEETING
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16th SGA BIENNIAL MEETING KEYNOTE SPEAKER

In concurrent session:
Metallogeny of Central Tethyan Belt



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A Carlin-type gold mineral system for exploration targeting in NW Iran

Mineral systems consider processes that are critical to the genesis of mineral deposits. In this research, the Zarshuran gold deposit, located in NW Iran, was modelled to identify the controls on mineralization. Heat and metal sources of the hydrothermal system, fluid pathways, and structural and lithological accumulation environments were identified at a deposit scale, and converted to targeting elements in a district scale. Intermediate intrusive rocks are considered as the heat and gold sources. Particular faults and their intersections with anticline axes and brecciated dacite acted as indicators of fluid pathways. The intersection of the main faults and an anticline were determined as fluid accumulation zones. Silicified carbonate and black shale are considered as the favorable reactive host. An anticline, formed through uplifting, was introduced as an important physical throttle. Finally, by introducing a mineral system model for the Zarshuran Carlin-type gold deposit, these critical processes were converted to regional gold exploration features by using geological mapping and remotely-sensed hydrothermal alteration zones in a GIS environment. Based on the proposed mineral system, the identified exploration features were ranked by appropriate weighting for targeting gold mineralization. A final gold potential map was created by using a weighted index overlay and data integration modelling to locate areas of high gold potential for future exploration.

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Hooshang gained a PhD in Mineral Exploration in 2000 from Delft University of Technology, The Netherlands, and worked for Rio Tinto from 2001 to 2003 before joining Isfahan University of Technology in Iran as an Assistant Professor, a position he continues to hold. Between 2013 and 2016, he was a Visiting Researcher at the Center for Exploration Targeting (CET), School of Earth Sciences, University of Western Australia and became an Adjunct Senior Research Fellow at CET from 2016. He also holds senior positions in several mineral exploration companies and is a Member of the Editorial Board (Associate Editor) of the journal *Ore Geology Reviews*
