Exploring for Copper & Gold Mineralization in Iran

Research Project Available for Sponsorship

Project Overview

Iran is recognized as one of the world’s top 15 most mineralized jurisdictions with an in-ground net value estimated at about $700 billion. Iran hosts the world’s 9th largest copper reserve and has extensive regions of gold mineralization. Government officials have clearly stated a desire to significantly increase investment in their mining industry, which now contributes only 0.6% to GDP. With the lifting of economic sanctions, Iran now potentially provides opportunities for savvy explorers.

The geology of Iran is dominated by subduction-related continental margin arcs that form several belts, which provides numerous favorable environments for the formation of porphyry copper, related skarn, and epithermal gold deposits (Figure 1). There are over 1000 significant copper prospects and >100 significant gold prospects that are currently identified. Notable among these are porphyry Cu-Mo deposits such as Sar Cheshmeh (1.5 Gt @ 0.65% Cu, 350 ppm Mo), Sungun (1Gt @ 0.7%Cu), and nascent epithermal Au deposits such as Sari Gunay (52 Mt at 1.77 ppm Au). The main porphyry belt in Iran (Urumieh-Dokhtar zone) which extends from southeast to northeast is comparable in size to the central Andean porphyry belt in Chile and therefore provides extensive favourable ground opportunity to explore for large porphyry and allied deposits.

These favourable geological and economic conditions provide an opportunity to apply modern mineral exploration strategies and methods to this region.

The Opportunity

Building on MDRU’s strengths and expertise in Iran, we propose to build a research consortium that will provide interested companies with three packages of essential decision-making information:

1) A foundation and opportunities to develop collaborative interactions between exploration industry and Iranian government and mining organization, e.g., Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO), National Iranian Copper Industries Co (NICICO), the Geological Survey of Iran (GSI), educational and local industry representatives in Iran;
2) Geological information and data sets on the geology and mineral deposits in Iran and
3) Fundamental framework on the geological and metallogenic components that are the foundations of Iran’s mineral wealth.

In addition, participants are encouraged to indicate particular regions or topics of interest which can be evaluated either directly, in a one-on-one relationship, or as part of the broader consortium. Additionally, industry sponsors will be able to participate in workshops and field trips on geology and metallogeny of Iran.

This project will build on MDRU’s prior knowledge on Iran, utilize the expertise of our Iranian research staff, and the good working relationships we have with the Iranian local exploration sector. We anticipate that such results will accelerate and enhance future exploration success in Iran.
Objectives

The project has several main objectives:

1. Create/update datasets of geology, mineral occurrences, geochemistry and geophysical data for Iran
2. Create and update datasets of the regional structural, magmatic and tectonic features for Iran
3. Analysis and interpret datasets to develop regional metallogenic frameworks
4. Compile and generate new geochronological data to construct a magmatic evolution for Iran
5. Characterize the regional geological settings and identify the metallogenic controls for each belt and identify regions with high or new exploration potential
6. Acquisition of new information and research on selected belts or regions, such as the prosperous Kerman, Ahar and Takab belts, or more frontier belts such as Lut or Kashan to identify potentials and develop exploration strategy
7. Facilitate communication and provide field visits and workshops and training on the geology and exploration of mineral deposits in Iran

Deliverables

- Kick-off Technical Meeting
- Field trip to key mineral districts and deposits
- Field reports to sponsors after all field investigations
- Maps of the geology and mineral deposits for selected belts
- Tectonic, geological, mineral deposits, structural, geochemical and geophysical datasets
- Magmatic evolution of Iran
- Metallogenic maps, supported by field descriptions, mineralogical, lithological, geochemical, petrographic and geochronological data
- District scale maps showing key geological features controlling mineralization and criteria to vector towards new targets.
- Annual technical meetings, presentation and reports.

Sponsorship

To achieve these objectives, we anticipate establishing an industry research consortium. Each industry sponsor is asked to contribute ~$50k per year for three years. Budget for projects of specific regions and for one-on-one relationship can be discussed on the basis of project needs and details.

Contact

For more information on this project, contact Craig Hart (chart@eos.ubc.ca) or Farhad Bouzari (fbouzari@eos.ubc.ca)

Project Leaders

Dr. Farhad Bouzari is a Research Associate at MDRU and has over 20 years experience in hypogene and supergene setting of the porphyry deposits in South America, British Columbia and Tethyan belt. He completed Iran segment of the WTMP. He has studied application of alteration and geochemical data in footprint studies and the use of porphyry indicator minerals in exploration.

Dr. Mana Rahimi works as MDRU’s Geomatics Geologist. She has expertise in image and data processing, spatial analysis, remote sensing, manipulating geophysics, data integration, GIS and using machine learning methods (fuzzy logic, neural networks, prospectivity analysis etc.). Mana has a PhD (2009) from the University of Clausthal, Germany and expertise in Iran geology and mineral deposits.

Start/Completion Date

April 2017 - April 2020 (3 years)