

Quantitative mineralogy and vein stratigraphy in the Ada Tepe low-sulfidation gold deposit (Eastern Rhodopes, Bulgaria)

Contact person: Kalin Kouzmanov (Department of Earth sciences, University of Geneva)
kalin.kouzmanov@unige.ch; Phone: +41 (0)22 379 68 93

Context

Low-sulfidation epithermal deposits are a major source for gold for our society. Economic mineralization often occurs as crustiform and colloform banded silica veins, commonly showing “boiling” textures such as bladed calcite, abundant adularia, moss chalcedony etc. The Ada Tepe deposit has been recently discovered and goes to production in 2018. Ore mineralization in the hydrothermal system is associated with complex multi-stage banded silica veining in sedimentary rocks, with bonanza gold grades. Mechanisms of formation of the gold mineralization in the deposit are still debated.

The project will run in collaboration with the company Dundee Precious Metals, operating the Ada Tepe deposit in the Krumovgrad area, Bulgaria (see web-site below).

Objectives and Methods

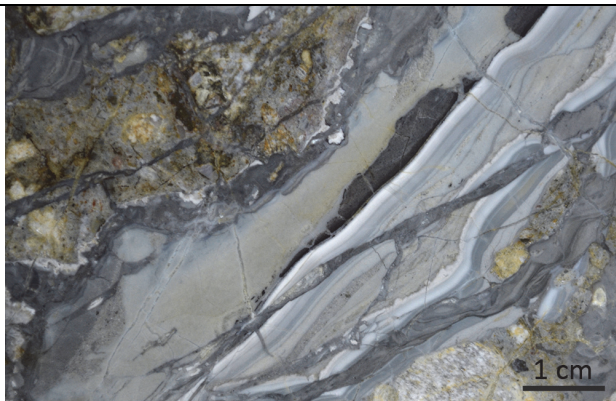
The Master project aims to apply a combination of analytical techniques for quantitative mineralogy, textural analysis and geochemical tracing in order to establish vein stratigraphy and detailed paragenesis of the mineralization in the Ada Tepe deposit and to study the major factors leading to gold precipitation in the system. Methods to be applied: i) Detailed field mapping and core logging; sampling; ii) Transmitted/reflected-light petrography; iii) QEMSCAN; iv) Cathodoluminescence (SEM-CL and cold-CL); v) EPMA and LA-ICP-MS.

Literature

Marchev et al (2004) The Ada Tepe deposit: a sediment-hosted, detachment fault-controlled, low-sulfidation gold deposit in the Eastern Rhodopes, SE Bulgaria. *Schweiz. Mineral. Petrogr. Mitt.*, 84: 59-78.

Marinova et al (2014) Colloidal origin of colloform-banded textures in the Paleogene low-sulfidation Khan Krum gold deposit, SE Bulgaria. *Mineralium Deposita*, 49: 49-74.

Marton et al (2010) Application of low-temperature thermochronology to hydrothermal ore deposits: Formation, preservation and exhumation of epithermal gold systems from the Eastern Rhodopes, Bulgaria. *Tectonophysics*, 483: 240-254.



http://cms.unige.ch/sciences/terre/research/Groups/mineral_resources/mineral-resources.php

<http://www.dundeeprecious.com/English/Operating-Regions/Development-Projects/Krumovgrad/Overview/default.aspx>

Choice of orientation:

Geochemistry, Alpine tectonics, Ore Deposits (GATO)