

## **An isotopic study of VMS deposit systems from the Troodos ophiolite, Cyprus**

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Cyprus-type sulfide deposits are generally considered as volcanogenic massive sulfide deposits (VMS), mainly Cu-rich with subordinate Zn sulfides. They can be found within the Upper and Lower Pillow Lava Series of the Troodos ophiolite, which is characterised as a fragment of Mesozoic ocean floor, that uplifted after the collision between Eurasia and Africa during Alpine orogeny[1,2]. These deposits were formed by the circulation of metal-rich hydrothermal fluids and their mixing with heated seawater through a network of fissures[1,3]. Troodos ophiolite is presented as one of the most complete ophiolitic sequence, consisting of plutonic rocks (harzburgites, dunites, pyroxenites, gabbros), intrusive rocks (diabases), volcanic sequence (basalts and pillow lavas) and chemical sediments (umbers) [1].

We aim at combining petrographical and geochemical observations of the VMS deposits from different regions/mines of the Troodos ophiolite. Notably, we are using non-traditional stable isotopes like Cu and Zn to investigate the processes of ore-formation and trace metal enrichment, which led to primary and secondary Cu-bearing sulfide deposits (supergene enrichment). As many authors mentioned before, supergene enriched environments are the best places to examine the behavior of Cu isotope fractionation under the weathering conditions of ore deposits [4]. Zn is also, a useful tool in this study because in contrast with Cu, it is not redox sensitive[5].

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