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**THE CONTRIBUTION OF THE INTEGRATED GEOLOGICAL-
GEOPHYSICAL-GEOCHEMICAL WORKS IN THE
PROSPECTING OF QUARTZ-SULPHIDE MINERALIZATION
IN GABBRO ROCKS OF CENTRAL MIRDITA, ALBANIA**

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The squares undertaken under the study are localised in the north-eastern part of Albania and belong to the gabbroid massif of Kaptina (Thirre, Golaj and Nikoliq) of about 50 km² surface, within which the copper-sulphide deposits occur.

In this paper, are mainly presented the data obtained from Thirra region, which are analogous with the above mentioned others.

The works have been carried out in 1:5000 scale with the grid 50 x 20 m.

Geological structure

The magmatic intrusive rocks consisting of gabbroid rocks of the Kaptina massif are included here. They are composed of the following rocky sorts: gabbro and gabbro-norites, which are prevalent. But the amphibolite gabbro-pyroxenites and quartzeous gabbros as well as their altered their sorts as chloritized, quartzitized and amphibolized gabbros occur as well. The more evident secondary processes are observed close to the mineralised zones.

Sulphide mineralization

It is represented by the hydrothermal genetic type formed in the replacing metasomatic way or the filling of the cavities in the weak tectonic zones. Therefore, the tectonic factors place the controlling role in the spreading and localisation of the copper sulphide mineralization apart from the magmatic factor.

The main bodies of the Thirra deposit are Nr. 1,6,6^b,6^c and 27.

The forms of the bodies are veiny prolonged and accompanied with inflations and slimming both, during the strike and dip.

The dimension of the industrial veins in strike and dip reaches from 50 to 300 m., whereas the general length of the quartz-sulphide vein reaches to 1 km (1,6,6^c bodies) within witch the industrial bodies occur in the chain form. The thickness of the bodies varies from 1 to 7 m. the mineralization is of the quartz-chalcopyrite, quartz-chalcopyrite-pyrite type with the Cu average content 1,5-2 % maximum 4 % Cu, 5-10 % S, 40-80 % SiO₂.

The ore bodies have north-eastern general strike with 40⁰-50⁰ azimuth and NW-SE variable dip, but concordantly with the general structure of the zone to wards the strike

Integrated operations

These operations have been consisted in the use of the provoking polarisation method (PP) by the average gradient scheme AB=800m, MN=40m, chosen by the experimental cycle on the Nr.1 known body. A legible signal by the DDC-2A equipment is obtained by this scheme. The combined resistance profiles and the natural electric field have been used as detailed method.

The mapping by the PP method for the prospecting of quartz-sulphide mineralisation has been advantageous because of high sensibility and solution capacity of this method regarding the sulphide content.

Some PP anomaly belts of same hundred meters strike, with north eastern direction just the same with the ore bodies strike of deposit, have been obtained.

The anomaly values of η_d on the quartz-sulphide bodies reaches to 3,5-6 %, distinguishing clearly from the gabbros (about 2 %) and of the resistance ρ_d to 8000 ohm, also clearly distinguishing from gabbros about 2000-2500 ohm value. The high resistance values are because of the quartz presence. But, the cases caused by the effect of the broken relief there also exist and it is into consideration during anomalies interpretation.

Some geological drilling's have been carried out along the ore anomalies considered of the ore nature, based on the data of the integrated operations. It is resulted that over 70 % of them have intersected in the quartz-sulphide mineralization according to the projected depths.

Therefore, based on the result of the integrated works carried out in the above mentioned zone is necessary to be recommended to use successfully these works also in the other parts of the Kaptina massif, in which the premises for the occurrence of the copper quartz-sulphide mineralization are promising.