

TAADANT & TIZOULA (Cu, Pb, Zn) (WESTERN ANTI ATLAS, MOROCCO)

Overview :

Within the framework of research programs and in particular the mining exploration for copper in Morocco, a control of airborne ZTEM anomalies have been conducted. Positive data have been acquired for two targets present in the Anti-Atlas Occidental area, Taadant and Tizoula prospects.

Target name	Anti-Atlas Occidental
Type of mineralization	Sedimentary copper deposit
Licence coverage	1 exploration license and 4 Mining permits (covering 384 Km ²)
Available data	Geological data/ Rock samples/ Geophysics
Average content	1,7 % Cu, 106 ppb Au, 108 g/t Ag, 1,8 % Pb and 2,5 % Zn
Dimensions	Continuity on several kilometers
Infrastructures	Roads, and electrical network.

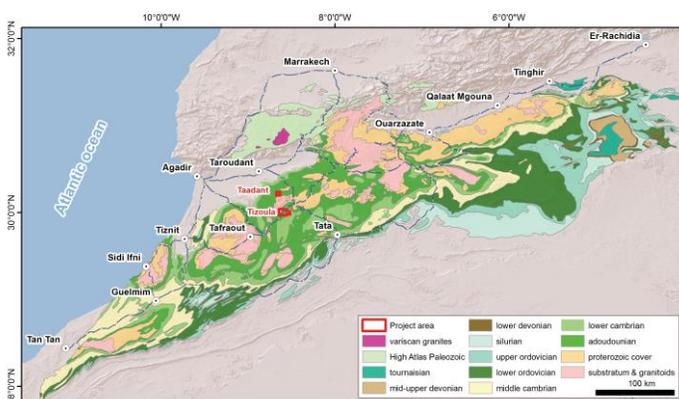
Geological setting and location:

The zone covered by this project is located at a hundred kilometers southeast of Agadir. A network of tarred roads connecting the cities of Tata, Tafraout, Taroudant, Tiznit and Agadir crosses it. The Western Anti Atlas prospects (Taadant and Tizoula) are hosted in the basic series. It includes, from the bottom up, three different formations: the basic conglomerate (or basic breach) with elements of the Precambrian basement and a volcanic cement, the «small limestone» (or limestones and dolomites), sandstones and siltstones (or detrital series). Then comes the series of lower limestones beginning with the carbonated formation known under the name of «dolomite of Tamjout» and ends with a formation of bedded limestones.



Malachite observed in the area

The cupriferous mineralization is essentially located in the basic series. The geological surveys showed that it has a spatial intimate connection with paleohighs. Most of deposits and occurrences develop in the vicinity of paleo highs. Taadant prospect showed a cupriferous mineralization (malachite) in the green siltstones of the basic series with a Cu content of 1,6%, with a thickness varying between 0.1 m to 1 m, and as malachite cement impregnation at the conglomerates of the PIII. The contents can reach 7, 1 % Cu. The results show also gold and silver contents that can respectively reach 106 ppb and 102 g/t. While in Tizoula prospect, a cupriferous mineralization is highlighted malachite in sandstones and siltstones with a dip of 20° to 30°. The copper appears in two places, in the wall of the basic series in contact with the conglomerates of the PIII and in the roof of the basic series in contact with the dolomites of Tamjout which are mineralized in Pb and Zn accompanied sometimes with some malachite and/or azurite. The chemical analysis shows maximal contents of 1, 7 % Cu, 105 g/t Ag. Pb and Zn recorded grades within the dolomites of Tamjout that reaches respectively 1, 8 % and 2, 5 %.



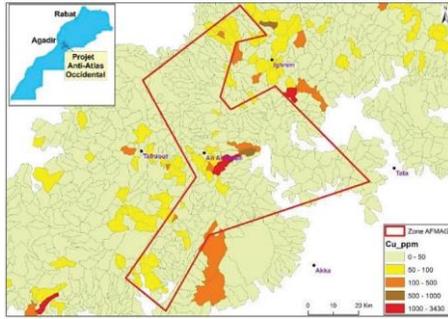
Location and geology of Western Anti Atlas Area

Mineralization :

Several ore deposits were exploited and cupriferous occurrences were recognized in western Anti Atlas, the most important are Tazalaght, Ouansimi, Talat N' Ouamane, Alous, Tizert, Tirhzit, Agoujal, Tiferki, Talat Not Souss, Tasserirt, Jbel Jaouad and Assif Imider.

Achieved Works and results:

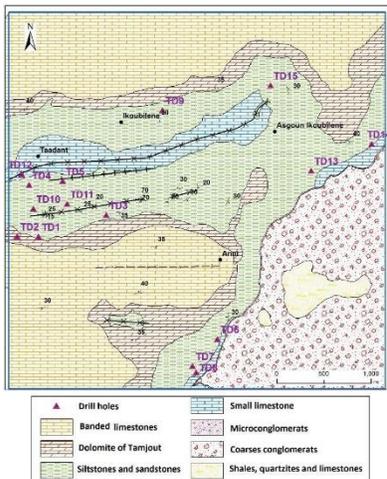
The sector of the project is considered as promising and favourable to the existence of cupriferous mineralization, what urged the ONHYM to undertake the mining exploration in the sector using various methods of exploration: ONHYM realized in 2012 an AFMAG airborne campaign using geophysical



Results of Geochemistry BLEG in the project

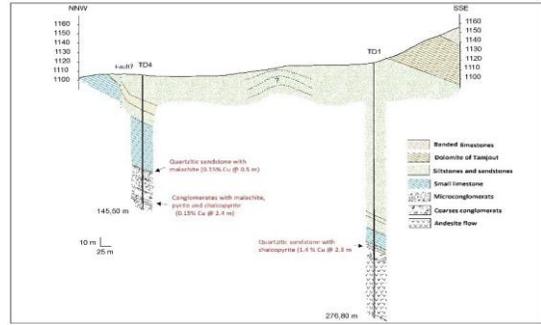
This airborne geophysical ZTEM's survey allowed establishing a resistivity map for geological inlier's formations and their infracambrian covers in the area between Taфраout, Ighrem and Tata. The interpretation of AFMAG data, allowed highlighting 21 hidden paleo- heights that could be potential targets for copper. A geochemistry BLEG campaign was realized by the company Newmont within the framework of an agreement with ONHYM. It highlighted many geochemical anomalies.

Ground-geophysics surveys by induced polarization / resistivity was realized. The results showed two chargeability anomalies that continues on both sides of the Taadant anticline. A gravimetric survey was carried out in 2017. The comparison to the geological map shows a correlation between anticline structures and positive gravimetric anomalies. Some anomalies are also identifiable below the dolomitic cover, which allow us to assume the presence of a bulge of the base plumb with these anomalies. According to geophysics results and geologic works, a drilling campaign was realized. All drill holes intersected a mineralized zone encased in the basal part of the basic series below the "small limestone", and this zone can be sandstones or quartzitic sandstones with disseminated malachite, pyrite and chalcopyrite. In Tizoula target, geophysics anomalies (resistivity / induced polarization) shows a good correlation with the basal series formations, while having a visible rooting below the signals of strong resistivity, which correspond to dolomites and limestones.

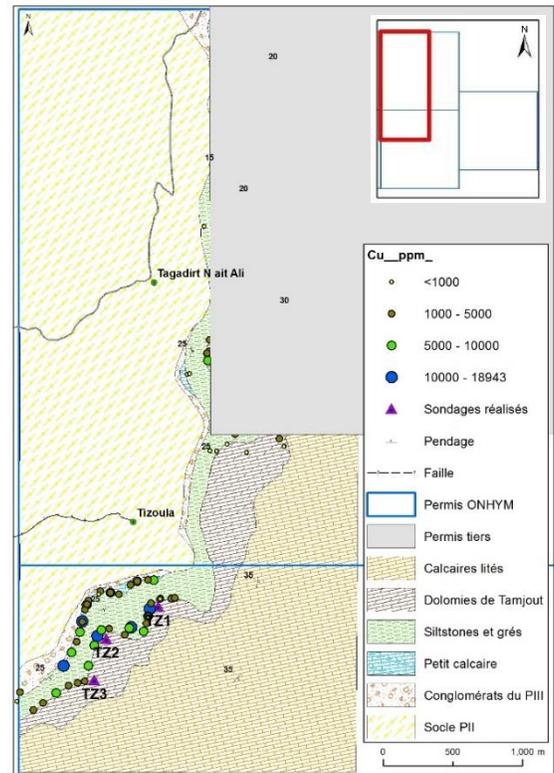


Local geologic context of the sector of Taadant

parameters of the copper deposit of Tazalkht currently in exploitation.



Interpretative cross-section of the drill holes TD1-TD4



Local geologic context of the copper sector of Tizoula

Outlook :

Airborne geophysical works carried out by ONHYM in the region of Western Anti-Atlas highlighted a number of AFMAG targets, visible by their contrasts of resistivity. These targets confirm the existence of paleohighs, in- depth, favorable to the presence of cupriferous concentration. All these results allowed the delimitation of promising zones to lead geological surveys and detail geophysics. Research programs, integrating geology, litho-geochemistry, trenches and drilling campaign, will be carried out to discover new copper deposits in the area.

For more information, please contact Ms.

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