

Chapter 5 Conclusions and Recommendation

5-1 Conclusions

5-1-1 Tunca Area

(1) Geology

The rocks in the survey area are of the district are of the upper Cretaceous Alemağaç, Çağlayan, and Sivrikaya Formations, and Tertiary Hamidiya Formation from the bottom, and the intrusive rocks such as dacite and dolerite.

The Alemağaç Formation is composed of the dacite lava (Adcl), dacitic pyroclastic rocks (Atf), purple dacite (Adcp), green dacite (Adcg), Green dacitic pyroclastic rocks (Attf), dacitic tuff-breccia (Adlh), and dacitic tuff-breccia (Adlf). The dacite lava (Adcl) forms lava domes centering Muskale Mountain to the south of the district. The dacitic pyroclastic rocks (Atf) has been formed by the phreatic explosion occurred on the flank of the lava dome. The purple dacite (Adcp), green dacite (Adcg), and its pyroclastic rocks (Attf) are of essentially same source, showing different facies, and extensively distributed specially in the south. The dacitic tuff-breccia (Adlh) and dacitic tuff-breccia (Adlf) have been captured by the drilling survey, and is situated subsurface of the north.

(2) Mineralization

The volcanogenic massive sulfide ore deposits in the district have been formed by the hydrothermal activity associated with the phreatic explosion on the flank of the dacite lava dome (Adcl) of the Alemağaç Formation. In the decaying stage of the hydrothermal activity right after the phreatic explosion stopped, the purple dacite intruded. Then, it is presumed that the mineralization occurred in the green dacitic pyroclastic rocks (Attf). Accordingly, the ore horizon ranges from the upper part of the dacitic pyroclastic rocks (Aft) to below the reddish calcareous mudstone of the lowermost bed of the Çağlayan Formation.

Regarding the mineralization in the district, it is thought that the mineralization itself has been weak or the district has been situated far from principal mineralization center. Considering the location of the purple dacite, the geological state of the drill hole MJTH-2, and the ore formation process of the Tunca Deposit, it is presumed that the postulated mineral center should be to the northeast to east of the Tunca Deposit.

5-1-2 Murgul Area

(1) Geology

The rocks in the survey area are of the lower Cretaceous Kabaca Formation, and upper Cretaceous Murgul, Ardiç, and Küre Formations, and intrusive rocks such as dacite, andesite, and granitic rocks. The Kabaca Formation is the lowermost formation in the district, consisting of andesite and andesitic sedimentary rocks. The Murgul Formation is divided into two members, the Lower Member having been undergone volcanogenic massive sulfide mineralization and overlying Upper Member. The lower Member is extensively distributed in the district, consisting of dacite lava and dacitic pyroclastic rocks (Mdcl). The Upper Member is composed of pumice tuff, and fine-grained tuff. The Ardiç Formation is characterized by basic volcanism represented by basalt and andesite lava. It is divided into several members by intercalated sedimentary layers. The Küre Formation is distributed to the north of the district, being composed of sedimentary rocks. The Karatepe Dacite intrudes into the Murgul and Ardiç Formations, and overlies the lower basic volcanic rocks of the Ardiç Formation as pyroclastic rocks. The granitic rocks are distributed in the watershed of the Kokolet River as stocks.

(2) Mineralization

The volcanogenic massive sulfide mineralization zones exist in the district, being hosted in the Lower Member of the Murgul Formation. The alteration mineral zoning associated with the mineralization, the distribution of the strong alteration intensity zones, and the arrangement of the mineralized zones extend northeast to southwest through the Murgul Deposit swarm. It is thought that the volcanogenic massive sulfide mineralization has occurred along this zone.

The ore horizon of the southwest side of the Murgul Deposit has been already eroded out, exposing the Lower Member of the Murgul Formation. However, the mountain block from the Ardiç area to Kokolet area in the northeast side of the Murgul Deposit is composed of the basic volcanic rocks of the Ardiç Formation. It means that the Upper Member of the Murgul Formation possibly exists underneath the mountain block. Therefore it is possible to judge that there is some potential for large-scale volcanogenic massive sulfide ore.

5-2 Recommendation for the Third Year's Program

The second year's survey program has concluded that the center of the volcanogenic massive sulfide mineralization possibly would be to the northeast of the Tunca Deposit, and the mountain block in between the Ardiç area and Kokolet area in the Murgul area would be a high potential area for the volcanogenic massive sulfide ore deposit.

In the third year's survey program, following surveys are recommended to perform.

1. Tunca area

(1) East of the Beyazsu area

* Drilling Survey

To confirm the potential for the center of the volcanic massive sulfide mineralization, to the east of the mineralized part captured in drill hole MJTH-3.

(2) Around the Maganez area

* Detailed Geological Survey

* Drilling Survey

To obtain more detailed knowledge of the occurrence to judge its potential for mineralization in the dacite of the Alemağaç Formation in the western corner of the Tunca area.

2. Murgul area

(1) Eastern mountain area in the Ardiç area.

* Drilling Survey

To confirm the potential for the volcanogenic massive sulfide ore deposit extending from the Murgul Deposit swarm.

3. Another area

(1) Around the Peronit, Kutunit and Syvrikaya area.

* Detailed Geological Survey

* Drilling Survey

To obtain more detailed knowledge of the occurrence to judge its potential for mineralization that is extracted from MTA's reconnaissance survey.