



The Geology and Petrography of Yücebelen and Surrounding Area, Torul-Gümüşhane

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The study area is located in the tectono-stratigraphic zone named "Eastern Pontide Zone" from the northeastern part of Turkey. Eastern Pontides were formed by the subduction of Tethys Ocean under the Eurasian plate, during the Early Cretaceous - Late Eocene. Eastern Pontide orogenic zone can be divided in two tectono-stratigraphic subgroups as the northern and southern zones. The study area is located very close to border of these two subgroups but located in northern zone. In this project, the first geological map of the study area at the scale 1:5000 was made. Subsequently, detailed geological maps at the scale 1:2000 were made for the areas rich in ores. In the study area, Upper Cretaceous volcanic rocks consisting of basalts and basaltic andesites take place at the bottom of the rock sequence. Basalts and basaltic andesites with hyaloophitic, vitrophiric and microporphyric texture comprise plagioclase +pyroxene +chlorite +calcite ±epidote ±chalcedony ±opaque minerals. They are overlain by concordant pyroclastic and dacitic-rhyodacitic rocks. Quarts + K-feldspar ±plagioclase? ±biotite ±chlorite ±calcite ±chalcedony minerals are determined as a result of microscope investigation on samples taken from these rocks. These rocks are overlain by sedimentary rocks intercalated with pyroclastic rocks. All those units mentioned above, were intruded by granitoids of supposed Upper Cretaceous-Eocene age. Granitoids that crop out in the area were classified in terms of Q-ANOR parameters as granodiorites (Adile Hamlet occurrence - investigated in detail), diorites (Tuzlak Hill occurrence- eastern-part of study area) and quartz monzodiorites (İstavroma Hill occurrence- northern part of study area). Adile Hamlet granodiorites comprise plagioclase +pyroxene +chlorite +calcite ±quartz ±epidote +opaque minerals. A sequence of quartz +orthoclase +plagioclase ±chlorite ±epidote ±calcite ±opaque minerals have been determined after investigation of the rock samples collected from Tuzlak Hill surrounding area. Also, petrographic investigation gave us plagioclase +hornblende ±biotite ±chlorite ±calcite ±quartz ±opaque minerals mineral sequence for the occurrences seen around İstavroma Hill. All of these units are intruded Late Eocene andesitic and dacitic dykes.

It was determined that Cu-Pb-Zn mineralization depends on the quartz veins developed in the fracture zones of the granitoid body and its contacts with sedimentary rocks. These veins revealed a paragenesis consisting Cu-Pb-Zn minerals.

Key words: Eastern Pontides, Gümüşhane-Torul, Granitoid, Cu-Pb-Zn mineralization, Gümüşhane-Torul