

Determination Surface Characteristics and Alteration of Koru Mining Area(NW Turkey)by UAV Photogrammetry

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SUMMARY

Biga Peninsula is a rich region in view of current mineral exploration in Turkey. The study area is located near the Koru (Lapseki/Çanakkale) village, in northeastern part of the Biga Peninsula. Koru deposit is hosted by volcanic rocks which are directly related to economically significant mineralization such as Pb-Zn. This deposit is shaped by Tertiary volcanic units including rhyolitic lava and tuffs. In this study, we used ortho-mosaics from Unmanned Aerial Vehicle (UAV) photogrammetry to analyze materials of natural and artificial the objects on surface, to produce maps of study areas, to determine litological differences of geological units, to introduce their contact relations, and finally to detect alteration characteristic on concerning rocks. For this purpose, we employed air imagery using high resolution digital camera integrated to UAV. In this context, UAV technology would be first used to geological researches for producing thematic maps (the rock classifying maps). The lava and tuff lithologies in the Koru mining area have been successfully distinguished using the imagery obtained from UAV. Severe sulphidation, kaolinitization, silicification and iron alteration on tuffs are classified and zoned in the map by image processing techniques in addition to the surface topography. As a result, lithology and mineralization maps can be produced in short time especially for the local areas using UAV technology and image processing.