

Eruption Centers of Galatean Volcanic Province: Distribution and Relation to Regional Tectonics, Turkey

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Major volcanic activity in the Galatean Volcanic Province (GVP) occurred 16-24 Ma and produced calc-alkaline volcanics comprising felsic to intermediate lava flows and pyroclastics. The province is intensely eroded and most of the primary volcanic structures are not preserved. Six poligenetic and about 370 monogenetic eruption centers are identified and mapped within the GVP. The centers are grouped into 14 clusters based on their spatial distribution and lithologies. Each cluster corresponds to a volcanic complex characterised by circular or elliptical topographic mass and is defined by a volcanic form of either composite volcano or caldera or dome group. The diameter of the complexes range from 8 to 30 km with their major eruptive vent being located almost at the center with a diameter of 2-5 km. The dominant lithology of the vents is andesitic in 9 complexes, basaltic andesite in 2 complexes, trachyandesitic in 2 complexes and rhyolitic in 1 complex. Although there are few crosscutting relationships among the complexes, there is not adequate age determination to figure out the order and propagation direction of the eruptions. Some vents are randomly distributed while others are aligned in certain directions. These directions are tested with the lineation maps produced from Landsat TM image and DEM of the GVP. Both the faults and the morphology of the GVP suggest four dominant directions that are consistent with the alignment of vents. These directions are NE-SW, NEE-SWW, N-S and NW-SE.