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SURFACE AREA AND MICRO-ROUGHNESS OF VOLCANIC ASH PARTICLES: A case study, Acigol Volcanic Complex, Cappadocia, Central Turkiye

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Every single ash particle may convey information about its own formation environment and conditions. Certain features on particles may give a hint about the fragmentation regime, the intensity of fragmentation and quantity of water that partakes in the fragmentation process, etc. On this account, this study majored in the analysis on finer pyroclastic material, namely volcanic ash particles. Here, we used volcanic ash particles from Quaternary Acigol Volcanic complex (West of Nevsehir, Cappadocia, Central Turkiye). Quaternary Acigol Volcanic complex lies between the towns of Nevsehir and Acigol. It consists of a shallow caldera, a thick pyroclastic apron, seven obsidian dome clusters, and scattered cinder cones and associated lavas (Druitt et al., 1995). The products of explosive volcanism of the region were distinguished as two main Quaternary tuffs by a recent study (Druitt et al., 1995). Samples are from ashfall beds in a sequence of intercalated pumice fall, ashfall, and ignimbrite beds. In this study in order to achieve surface properties of volcanic ash particles, surface areas and micro-roughness of ash particles were measured on digital elevation models (DEM) reconstructed from stereoscopic images acquired on Scanning Electron Microscope (SEM) at varying specimen tilt angles. Correlation between surface texture of volcanic ash particles and eruption characteristics was determined.