



Changing morphology of accretionary lapilli further from the source (Zelve eruption, Cappadocia-Central Anatolia, Turkey)

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Ash aggregates may convey information about the modes of eruption, transport and deposition. However, they were characterized on two-dimensional SEM micrographs or thin-sections to date. Here, the morphologies of accretionary lapilli from Zelve eruption in Cappadocia (Central Anatolia-Turkey) were obtained using X-ray computed micro-tomography. Volumetric core to rim ratios were calculated on three-dimensional models of aggregates which were reconstructed after tomography scans. Accretionary lapilli from Zelve eruption have decreasing core/rim ratios with increasing distances from the source. Samples collected from six locations with different distances from the source were analyzed. The proximal aggregates have core/rim ratios of 0.4-0.6, while the distal aggregates have ratios of 0.1-0.2. The decreasing core/ratios from proximal to distal locations indicate the depletion of coarse ash and/or the depletion of steam in the column. The column exhaust the coarse ash and/or the steam which is needed for accretion of coarse material during transportation to the distal zones.