

BALLISTICS SHOWER DURING PLINIAN SCENARIO AT VESUVIUS

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Pyroclasts distribution of 79 AD eruption are analysed to yield initial velocities during the white and grey phases of the eruption. The size distribution of pyroclasts controls the relationship between the total amount of kinetic energy available from the system and the exit velocities at the vent of each of the various pyroclasts size classes and the gas phase. The numerical models of explosive activity developed in previous treatments ignored the two-phase nature of the system, therefore in evaluating the kinetic energy of eruptive phase, we consider not only the coarsest clasts but also the wide grain size range of pyroclasts ($+5\Phi$ to -10Φ). Blocks with median diameters of 0.3 m fell 9 km from the vent; their trajectory is not truly ballistic type, because these projectiles were sustained in the eruptive column during the early times of explosion and go far by finger-like projections of main flow. In order to model an explosive scenario at Vesuvius we argue that the ballistics shower will affect a large area surrounding the volcano during a plinian eruption.