

The plinian eruption of the Misti volcano: Autopista deposit ~14,000 years

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The west side of the Misti volcano is identify and correlate with 14 fall deposits of lapilli-pumice, it emplaced on the last period of the 31,200 year, the name of the deposits are “Fibroso I”, “Sacaroide”, “Fibroso II”, “Blanco”, “Autopista”, “Sándwich” and “2,000”.

The “Autopista” fall deposit, which was emplaced between 21,000 and 11,300 years, is an uniformity layer of lapilli-pumices. In the middle layer of Autopista fall deposit has contened of litics fragments which are divided to deposit in two main levels: the low level is poor in litics (3%) and the upper level is rich in litics (23%).

The lobe of dispersion of the “Autopista” deposit is oriented to west .Its major direction is E-W. In the sotavento (west direction), the isopachs are become from 40 -20cm to 20 -25 km of the crater respectivemently.

The pumice of the Autopista deposit is andesitic in composition (63% SiO₂) and show calc-alkaline characteristics. The crystallization order of the minerals is pyroxene, plagioclases, oxides, amphiboles and biotite. The percentage of compatible elements (Sr, Sc, V, Co, Cr, Ni) and hidromagmafiles (Rb, Th). Their characteristics are the evidences of the fractional crystallization processes.

It is estimated that the height of the eruption column is between 22 and 25 km, and minimum volume of fall deposits is 0.16 km³. With the help of these dates, we say that in the past the eruption type of this volcano is plinian type and it could be found a Volcanic Explosivity Indice (VEI) 4.