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## **Characteristic of explosive eruption of 3270 years ago of Yucamane volcano (Southern Perú)**

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The Yucamane volcano is one of the seven active volcanoes located in southern of Peru. Our detailed tephro-chronological study able us to identify to the east and southeast of the volcano a deposit of andesitic pumice lapilli fallout (61.1-62.7 wt.% SiO<sub>2</sub>) which we found over 8 km away from the volcano. A <sup>14</sup>C charcoal dating of a sample from the base of the deposit produced an age of 3270 ± 50 BP. This eruption also emplaced a pyroclastic density current that crops out at the northeastern and norwestern flanks of Yucamane cone reaching a thickness of 6 m at 6 km from the vent. The pyroclastic flow is emplaced above of lapilli pumice fall. These deposits correspond to the last major explosive eruption of this volcano. Using field data and methods of Pyle (1989) and Fierstein and Nathenson (1992) the volume was estimated at 7 x 10<sup>6</sup> m<sup>3</sup>. Additionally, we added the volume of pyroclastic density current deposits, which we estimated at 9 x 10<sup>6</sup> m<sup>3</sup>. Therefore, the total volume of the eruptive products associated with this eruption is 16 x 10<sup>6</sup> m<sup>3</sup>. On the other hand, based on Carey & Sparks (1986) model, we estimate that the height of the eruptive column reached 11.5 km above the crater. According to calculations of volume and height of the eruptive column, it is concluded that it was a subplinian eruption, with a Volcanic Explosivity Index (VEI) of 3. This study highlight the fact that Yucamane can experience major explosive eruptions and able us to define different eruptive scenarios.