PHYSICAL IMPACTS OF THE CE 1600 HUAYNAPUTINA ERUPTION ON THE LOCAL HABITAT: GEOPHYSICAL INSIGHTS

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Abstract

The February-March CE 1600 eruption of Huaynaputina (VEI 6) has a well-documented worldwide climatic impact but the regional consequences of this eruption on climate, habitat and inhabitants are poorly known. The location of several villages buried below the Huaynaputina erupted deposits exceeding one meter in thickness is not clearly mentioned in the historical early Spanish chronicles.

Geophysical investigations carried out during the 2015-2016 period on three different sites (Coporaque, Calicanto and Chimpapampa within 16 km from the volcano summit/crater) are the initial stage and part of a large project termed «HUAYRURO», the objective of which is to better understand the physical and socio-economic impacts of the CE 1600 Huaynaputina eruption. An array of geophysical methods and tools was used: one drone to obtain high-resolution digital elevation models using aerial photographs, georadar 3D imaging, magnetism, infrared pictures, and electromagnetic measurements.

These first two years of preliminary geophysical investigation have allowed us to clearly identify a future strategy and select the best device to map as fast as possible one of the areas, namely Calicanto, defining the X, Y and Z location of the walls of the settlements and the extent of the buried village. This map is the basis on which the future tephro-stratigraphical and archeological studies will be built up. The final goal of this project is to disseminate the results of the multi-disciplinary study to a large audience including an onsite museum.

Keywords: *Huaynaputina volcano, CE 1600 eruption, geophysical investigation, forgotten communities, socio-economic impacts.*