

# **Geodynamic of Chavin de Huantardebris flow happen in January 17, 1945, Ancash, Peru**

B. Zavala (1), L. Fidel (1), V. Carlotto (1), P. Valderrama (1), and L. Medina (1)

1. Instituto Geológico Minero y Metalúrgico INGEMMET, Av. Canadá N° 1470, San Borja, Lima 41, Peru, (bzavala@ingemmet.gob.pe)

## **1 ABSTRACT**

The Ancash region in the central side of Peru has a high index of avalanches, debris flows or alluvions, which have registered mainly in the Cordillera Blanca, with historicity of events since XVIII century and prehistoric events. One of these alluvions generated at the Cordillera Blanca's Oriental versant at January 17, 1945. The flow went through the Huachecsa river inflowing of the Mosna river (Puchca river), going up to the Marañón river, leaving behind 300 dead persons' balance and affecting the Chavín Huántar's Archeological Complex,

Recent investigations show than mass movements at the Huachecsa headwaters, determined the origin of the alluvionical flow. In fact, in the Huantsán – Potrero glaciers, ice avalanches fell on two glacial lakes, originating the rupture of front moraines and later debris flow.

In the initial stretch the flow violently descended for the Alhuiña ravine when falling for an of over 50 m, generating a surge of gray mud and blocks until the confluence with the Cuchuash ravine. It has up to 10 m of thickness here and to 2-3 m for lost of velocity of the flow when it scattering on a valleys dam originated by ancient landslide. This happened until waters above its confluence with the Pucará ravine.

In the valley dams stretch, part of the ancient landslide, was erode and incorporate in the alluvionical flow downstream, where, for the closer of the valley, its high longitudinal slope and the existent crooks at its half an inferior length ( approximately 11 km ), the flow get faster, with no watching samples in Mosnas debouchment.

The final deposit formed an extended fan whose characteristic gray-colored dark deposit, covered great part of Chavín's archeological temple and the locality of the same name, with thicknesses up to 1.0 m, which extended downstream at the Mosna river on a plain of ancient flooding valley dams.

We emphasizes the morphology of the valley of Huachecsa river: 1) Glaciar zone with available material (moraines) , abrupt slope at the initial stretch; 2) Alhuiña Valley dam

and 3) Deep valley since Pucará ravine until its debouchment, like the mainly factor that controlled the dynamics of the flow. This event and ancient others, they show us the dangerousness of Chavin de Huántar's area and in general of the Cordillera Blanca for what new investigations that we come realizing they will allow getting a Map from Susceptibility to alluvions for the Ancash region to scale 1:50,000, including the cities of the Callejón de Huaylas (Huaraz, Yungay, etc.).