

## ***Geochemistry of sediments in Crepin point: Towards environmental base line in Machu Picchu Peruvian Antarctic station. King George Island.***

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Since 1989, the Antarctic scientific station has been used and visited by scientists and base personnel during the austral summers. Peru does not have a permanent scientific station, unlike Brazil or Poland, the nearest stations. However, only human presence, although sporadic, has an impact on this fragile ecosystem.

Birkenmajer (1980) release the first reconnaissance and mapping of geological units and subsequent work helps to define regional geochemical characteristics (Kraus et al., 2010). Locally, the first reconnaissance work in the Peruvian area was conducted by Palacios (1988) in the Antar II expedition; geomorphological and stratigraphic units present were defined. Subsequent works performed in Crepin Point were aimed to establishing the geotechnical (Fidel, 1991; Guzman, 1999; Pari & Zavala, 2000), mineralogical (Quispesivana, 1995; Aranda, 1997) and paleontological characteristics (Romero 2000; Morales 2002).

In Crepin Point, the oldest geological units are a Paleocene andesitic and dacitic lavas and pyroclastics flows outcrop was intruded by an Eocene granitic-granodioritic stock. In the contact area a small argillic alteration was developed with quartz-chlorite veins. Both units were intruded by a several dykes with EW and NS orientation. This geology is reflect in the composition of the sediments, and therefore in geochemical distribution of these.

Studies in sediments in Admiralty Bay and around the permanent scientific stations (Santos et al., 2005; Santos et al., 2007; Ribeiro et al, 2011; Sun et al, 2003) show concentration of As, Cd, Cr, Cu, Ni, Pb and Zn; which are associated, probably permanent human activity in these sectors. However the Antarctic Scientific Machu Picchu station is occupied temporarily, which significantly reduces the influence of human beings on the environment

Since Antar XXII Expedition (2013-2014) INGEMMET release a new cartography of lithological and structural units at the Crepin Point. And also take samples for delineate a geochemical database. Preliminary reports geochemical values of copper, manganese, arsenic, lead and zinc at the contact between volcanic and intrusive rocks. Also sediments samples around the Machu Picchu Station were human activities are common were examined for heavy metal content. The redistribution of lead, zinc, arsenic and copper arising from point sources of these metals was demonstrated. The levels are a geochemical and environmental baseline for futures human activities in Punta Crepin area.

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