



Pedological and mineralogical investigations on a soil-paleosoil sequence within Andosols in the Western Cordillera of the Peruvian Andes (region Laramate, 14.5S)

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An integrated research project of environmental sciences focuses on a group of four Andosol profiles in Western flank of the Peruvian southern Andes. Aim of this study is to contribute to the reconstruction of the paleo environmental conditions in the Western Cordillera of the Peruvian Andes.

Standard pedological and sedimentological analysis has been conducted in order to identify morphological and geochemical features generated by climatic variations during the middle and late Holocene. Though a provenance analysis of sediments, all potential lithological sources around the town of Laramate are being examined under the scanning electron microscope, in order to find significant mineralogical associations downward the soil-profile.

Preliminary results reveal two edaphic cycles within a soil-paleo soil-sequence: a relative poor developed "Ah" topsoil, mostly composed by fine grain sediments, is underlain by a well preserved "2Ah" paleo soil; a "2Bwt" subsoil exhibits signs of alteration and clay translocation; parent material in slight weathered statement at "2C" culminates the sequence.

Mineralogical analytical data supports the premise, that materials in the uppermost horizons are relatable to distal geological units of the Western and Eastern Cordillera, therefore also related to other described aeolian archives from the region: "Desert Margin Loess" at the Andean foot-zone and "Mixed Loess" in the Puna grassland. The amphibole varieties Actinolite, Mg-Hornblende and Edenite could be only distinguished within the soil sediments. The fluvial transport to its current position is excluded, insofar mentioned varieties stem from the granodiorites of Coastal Batholite (downstream the study area), and the vulcanites of the Anta und Andahuaylas Formation (eastward the continental divide).

References:

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