

## Holocene climate changes detected in the bottom sediments of the glacier lake, southern Peru

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We attempt to reconstruct climate changes during the Holocene by using a glacier lake on the southern Peru. For this, we had undertaken field investigation as echo sounding and piston coring at Lake Yauriuri, which is 130 km apart from Nazca city. The lake is one of typical glacier lake at height of 4,384 m. By the seismic record of the lake bottom from echo sounding, it is identified that 10-m thick mud layer with the intercalated fine sand layers on the bedrocks. And, two sediment cores were taken from the southwestern point at 50 m in water depth. The length of the cores is 50, and 170 cm, respectively. Lithology of the sediment shows that almost homogenous dark grey slit with two thin brownish flood-origin layers. We have analyzed physical properties, magnetic susceptibility, color reflectance, chemical compounds by XRF, CNS and ICP-AES with multiple radiocarbon dating for the whole core section. Our results indicated abrupt changes of S and Ti contents at 4,000 and 7,000 cal BP, suggesting that past lake level fluctuation and precipitation over the last 11,000 years caused by climate changes. These past environmental variations in Lake Yauriuri may have the similar pattern with other records in inland area of Peru as well as off shore Peruvian marine records.

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