



## Paleoenvironmental change in central Chile as inferred from OSL dating of ancient coastal sand dunes

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To present day, the climatic and geographic expression of glacials and interglacials in the semiarid coast of central Chile remains unclear. The lack of well dated paleoclimatic records has up to now precluded firm conclusions whether maximum glacials evident in the Andes mountain range probably coincide with wetter (e.g., pluvials) or drier conditions at the coast.

The natural region locally known as “Norte Chico” represents a transitional semiarid area between the extreme Atacama Desert to the North and the wetter, Mediterranean-like type of climate, to the South. In this semiarid region of Chile several generations of eolian sand dunes, some of them separated by paleosoils, have been preserved. In addition to the occurrence of paleosoils, thick debris flow deposits in some places overly ancient dune bodies, likely indicating significant environmental changes during the formation of these archives. However, the exact timing of these processes within the mid to late Pleistocene and Holocene is still unclear. A key aspect is that some of the ancient dunes are recently hanging above rocky coastlines, where no supply of sand exists today, likely implying their formation during a lower than present, probably glacio-eustatically induced sea level. The location of the research area in a key mid-latitude region of the eastern Pacific in combination with the preserved landform record offers a chance to reconstruct climatic shifts during the Quaternary by studying the variability of morphogenetic conditions throughout time, in order to promote knowledge about possible forcing factors driving climatic variability.

Within this pilot study, samples for optically stimulated luminescence (OSL) dating were taken from three different stratigraphic sections that denote a complex environmental variability as indicated by paleosoils and debris flow units intercalated in ancient sand dunes. First dating results inferred from OSL measurements using a post-IR IRSL (pIRIR) protocol for the dating of feldspar will be presented at the conference. Within this project we aim to establish a geochronological framework for the described sedimentary archives in order to unravel their local and regional paleoenvironmental context.