

Seasonality of erosion and eolian particle transport in the coastal Atacama Desert, Chile (23°S) Estacionalidad de la erosión y el transporte eólico de partículas en el desierto costero de Atacama, Chile (23°S)

Flores-Aqueveque, Valentina

Vargas, Gabriel

Rutllant, José

le Roux, Jacobus P.

The coast of the Atacama Desert is characterized by the occurrence of strong south- and southwesterly winds. The arid climate, flat geomorphology and the characteristics of the superficial sediments on Pampa Mejillones, located in northern Chile (ca. 23°S), favor the study of eolian erosion and transport processes in this coastal desert. In situ measurements of the horizontal particle flux (G) and winds in the area, together with sedimentological analyses of the uppermost part of the pampa sediments, allowed determination of the significant parameters in the eolian erosion and particle transport process and its seasonality. A local surface roughness parameter (z_0) of about 10-3 m was calculated, which is a typical value of desert plains. Seasonally, values of G up to 2,100 g cm⁻¹ month⁻¹ were observed, associated with friction velocities (u^*) between 0,4 and 0,5 m s⁻¹ during the spring of 2000. Similar results were obtained for the years 1999 and 2001. The sedimentology (granulometry a