



Parameters and genetic interpretation of a palaeosol from the Colorado Front Range, USA

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We present data of a buried palaeosol from the Colorado Front Range at the eastern slope of the Rocky Mountains, USA. The continental divide of the Rocky Mountains with altitudes of over 4,000 m a.s.l. function as an effective rain shield which leads to a semi arid climate in the lower altitudes. Thus, soil formation is at a low rate and the preservation conditions for palaeosols are bad. Therefore, the finding of a completely preserved palaeosol over several tens of metres is astonishing. We describe the physical and chemical properties of the buried soil together with radiocarbon data and optically stimulated luminescence (OSL) data.

Deposition of parent material began in the late Pleistocene and early Holocene with mainly gravel material of granodiorite outcrops. At around 9-8 ka aeolian input of silty sandy parent material led to the formation of a well developed A-horizon with according strong lessivation of clay and the formation of a well developed Bt-horizon. We interpret the formation of these sediments and the soil as an indicator of drier conditions with aeolian input followed by a short phase of wetter conditions with strong soil formation. As the soil is partly buried under more than 80 cm of colluvium, another environmental change occurred, reinforcing erosion and deposition of material.