Análisis de la variabilidad del colapso y su geología en un perfil de loess [

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text (article)

Analítica

The valuable and numerous damages on civil structures thatloessial soils from the city of Cordoba have generated becauseof their collapse susceptibility have been extensively studied bymany local researchers. Although every loess has similar origin,mineralogy and grain size distribution, not all loess becamecollapsible due to their different geological processes. In order o quantify this mechanical instability phenomenon and link this behavior to the geological history of loessial soils, astratigraphic profile located at Corralito, was studied. This lithologic profile consists of a loess-paleosol sequence that emerges ina 14 m deep naturally open trench, composed of an anthropic upper horizon, followed by an organic horizon, then a mantle ofupper loess, and finally in depth, the lower loess I, II and III. Thirty-three undisturbed soil samples were taken along these 14 mprofile and laboratory double oedometer tests were carried out. The test results showed that specimens from the anthropic,organic, and upper loess are highly collapsible. Nevertheless, the collapsibility coefficients measured on specimens from lower loessI and III, were close to one highlighting that there is no collapse susceptibility. The different mechanical behavior of the stratawas explained based on the processes suffered throughout their geological history. The mechanical stability of the lower loess Iand III was attributed to the fact that these horizons correspond to a fragipan and a possible possible horizon cemented withcalcium carbonate, respectively
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