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Cyclic dust deposition in the US Great plains during the last deglaciation.

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The Peoria loess unit is a well-defined stratigraphical unit in the Upper Pleistocene of the North American Quaternary. It is well identified, and corresponds to the main deposit of the Upper Pleistocene. At its base, the Gilman Canyon soil-complex formation is dated between 30 and 25 kyrs whereas at its top, the Bignell soil is dated at roughly 12 kyrs BP. It has been indicated that this unit shows the highest ever-worldwide depositional rate for eolian deposits, as its thickness varies near the source area between 19 and 46 m, extreme values that are not even recorded in the Chinese sequences. Previous OSL dates within this unit allowed defining a very high sedimentation rate but this was considering the Peoria loess as a homogeneous facies. The results of our present investigation indicate that this particular unit is not that homogenous. Its shows different subunits where some cyclicity can be observed: occurrence of embryonic soils alternating with laminae-like horizons. Furthermore the analysis of the grain size shows centennial cycles corresponding to variations in the eolian dynamics responsible of the dust transport and deposition. Comparisons are proposed with the Greenland dust and δ^{18}O records.