



Major dust events in Europe during the last interglacial s. l. period.

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Major dust storms are presently occurring at mid-latitudes in Middle East and in Asia, and at low latitudes in Northern Africa and Australia, whereas Western Europe, except some African dust originating from the Sahara, does not experience such important and dramatic climatic events. This modern situation is particularly interesting as the present interglacial is usually interpreted as an analog of the Eemian interval for future projections. However, the penultimate interglacial and early glacial experienced, as evidenced in European terrestrial records, major dust events. They are easily observed in loess records by their whitish color, overlying and underlying dark chernozem paleosols of MIS5 age. They are mostly recorded in Central Europe but their western limit, as such, appears to be the Rhine valley. We describe the base of the Dolni Vestonice, Czech Republic, loess sequence as the reference of this particular record. The dust events deposited during intervals characterized by poor vegetation (high values in $d_{13}C$, low magnetic susceptibility), and they show grain size values different, for the fine sand and clay content, than the overlying pleniglacial loess deposits. Some of these dust events have been previously described as "Markers" (MS for Marker Silts) by Kukla, and are dated at about 111-109 and 93-92 ka, a last one being slightly visible at about 75-73 ka. Others, described as eolian silts (ES) because corresponding to the loess material of Kukla's cycles, are observed in the same sequence and are dated at about 106-105, 88-86, and 78.5-77 ka. All these fine eolian deposits correspond to short events representing an average of about 2 ka time interval, and are synchronous to re-advances of the polar front over the North Atlantic as observed in marine cores. They also correlate with abrupt changes observed in European vegetation. Some ES and MS appear to coeval significant dust peaks recorded in the Greenland ice cores, others do not show such relationships. This decoupling between the European eolian and Greenland dust depositions is interesting to notice and differ from the glacial situation where the loess sedimentation mimics the Greenland dust record. Therefore, while the field observations support the previous interpretation of MS originated by continental dust storms, different modes of the atmospheric circulation seem responsible of the two categories of dust events. We discuss these intense wind regimes responsible of these particular deposits.