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Global geochemical pattern of European loess sequences, from Northern France to Ukraine during the last glaciation.

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Rapid climatic events occurred during the last glaciation. They are recorded in ice and marine sediments and recognized as Dansgaard-Oeschger events. Those rapid events are known having impact on continental areas but their extension, magnitude and timing are poorly documented. Loess deposits that widely cover Europe from northern France to Russia present very high mineral dust accumulation rates that yields temporal resolution sometimes higher than 1mm.yr^{-1} constitute the adequate archives for this purpose. In addition, rapid aeolian events, correlating with high dust content in Greenland ice records, have been already demonstrated in European loess sequences using high-resolution grain size analysis (Rousseau et al., 2002, QSR, Antoine et al., 2003, Quaternaire, Rousseau et al., 2007,GRL).

Organic geochemistry and especially δ^{13}C on loess organic matter (δ^{13}Corg) charac-

terizes paleovegetation and its environment. Not only defining predominant vegetation shift from C3 to C4 photosynthetic pathway plants, typical loess δ^{13}Corg record can be quantitatively transcribed in terms of precipitation (annual amount and distribution) (Hatté et Guiot, 2005, Climate Dynamics).

Using a loess-specific chemical protocol (Gauthier et Hatté, submitted), isotopic organic geochemistry (δ^{13}Corg) study has been performed in 5 loess-paleosol sequences along a West-East transect. Renancourt (Picardie, France), Villiers-Adam (North of Paris, France), Nussloch (Rhine Valley, Germany), Surduk (Danube Valley, Serbia), Vyazivok (Dnieper Plain, Ukraine) have been investigated. Thanks to a consistent team work based on chronostratigraphy and asolute datings (OSL, TL and ^{14}C), these sequences benefit now of reliable chronological tie-points that allow to outline the 5 paleoclimatological records as a whole.

Comparison between the five paleoclimatic signals and derived paleoprecipitation reconstructions allows to describe past atmospheric pattern. This highlights 1- a coastline impact westward that shades DO events impact on precipitation during low sea-level periods and 2- changes in seasonality eastward with a stronger difference between winter and summer precipitation level .