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Dolní Věstonice (Czech Republic): a new high-resolution loess-palaeosol record of the last climatic cycle in Central Europe

Pierre Antoine (1), Denis-Didier Rousseau (2), Christine Hatté (3), France Lagroix (4), Markus Fuchs (5), Olivier Moine (1), Caroline Gauthier (3), Jirí Svoboda (6), and Lenka Lisa (7)

(1) CNRS, Laboratoire de Géographie Physique, Meudon, France e-mail: pierre.antoine@cnrs-bellevue.fr & olivier.moine@cnrs-bellevue.fr, (2) LMD, CNRS-ENS, Paris, France, e-mail: rousseau@lmd.ens.fr, (3) LSCE, CNRS-CEA, Gif-sur-Yvette, France, e-mail: christine.hatte@lsce.ipsl.fr, caroline.gauthier@lsce.ipsl.fr, (4) IPGP, CNRS, Paris, France, e-mail: lagroix@ipgp.fr, (5) LS Geomorphologie, Univ. Bayreuth, Bayreuth, Germany, e-mail: markus.fuchs@uni-bayreuth.de, (6) Dept. Anthropology, Masaryk Univ., Brno, Czech Republic , e-mail: svoboda@iabrno.cz, (7) Instit. Geology, Czech Acad. Sci, Prague, Czech Republic, e-mail: lisa@gli.cas.cz

On the basis of multidisciplinary high-resolution records performed in key sites from Western and Central Europe, our group demonstrates that loess sequences result from rapid and cyclic aeolian deposition phases, and that a correlation exists between variations in both loess grain size indexes and Greenland ice-core dust records, suggesting a global connection between North Atlantic and west-European air masses. In this context, the key sequence of Dolní Věstonice (DV) in southern Czech Republic has been investigated within the ANR "ACTES" program, in order to build a 50°N transect from northern France to Ukraine across the European loess belt. From the multidisciplinary study performed in DV, we present here the high-resolution grain-size record and a new set of 14 OSL dates. The grain size record (15 m high profile; 300 samples) shows a strongly contrasted pattern with significant abrupt coarse-grained events well marked in the sand fraction, which are especially well preserved in the upper part of the sequence between ca. 20-30 ka. We also observe a progressive coarsening of the loess deposits during this period as already noticed in other European sequences. Besides, the base of the DV sequence exhibits an exceptionally well-preserved Eemian-Early Glacial soil complex allowing a detailed reconstruction of environmental changes between ca. 125-70 ka. This soil complex is composed by two stacked subsequences like in Western Europe: at the base, a condensed record of MIS5 (< 1m), characterised by colluvial processes, superimposed pedogenesis ending with a first chernozem-like horizon; in the upper part, a thick sequence ($\sim$ 2.5m), showing a cyclic succession of two chernozem soil horizons and an important development of the sedimentation rate linked to the deposition of aeolian silts ("marker loess").