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Mechanical approach for the characterization of loess deposits from the CBR's Romont quarry (Eben-Emael, Belgium) and correlations with loess stratigraphy.

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Aeolian silts (loess) are near surface deposits covering about 10% of the continent surfaces¹. Therefore a good knowledge of their mechanical behavior is an issue for designing subsurface engineering structures. Usually this material is considered as homogeneous for an engineering point of view. Aeolian silt deposits are continuously well developed in Hesbaye Region (Belgium) reaching locally 20m thick (see Figure 1). They are mainly related to the last interglacial (Eemian) and glacial (Weichselian) periods². Nevertheless the pedostratigraphical, chronostratigraphical and paleoclimatic approaches have shown these silt deposits are usually composed of a series of paleosoils (i.e. Rocourt soil, Humiferous Complex of Remicourt, Harmignies Soil, Nagelbeek Tongued Horizon) interbedded with stratified or homogeneous aeolian silt layers. This study aims to characterize the variability of the in situ mechanical characteristics of the loess deposits from Hesbaye Region at the site scale and at the laboratory scale. Cone penetration tests (CPT), electrical resistivity tomographies (ERT) and drillings have been performed through a 10m thick loess layer in an investigation site located close to the CBR's Romont quarry (Eben-Emael, Belgium)³. Continuous undisturbed silt samples from drillings have been physically (granulometry, Atterberg limits, water content, organic matter content, carbonate content) and mechanically (oedometer test, triaxial test) characterized at the laboratory. Mechanical behavior and physical characteristics have underlined a series of layers with variable mechanical properties through depth. Some of these layers correlated with a detailed stratigraphy cross-section close to the investigation site could correspond to well-known paleosoils.

¹ Pesci, M. 1990. Loess is not just the accumulation of dust. In: M. Pesci and D. Loczy (Eds). *Loess and the Environment*. Pergamon Press, Oxford, pp. 1-21.

² Haesaerts, P., Di Modica, K. & Pirson, S., 2011. Le gisement paléolithique de la Sablière Gritten à Rocourt (province de Liège). In : Toussaint, M., Di Modica, K. & Pirson, S. (Eds). *Le Paléolithique Moyen en Belgique. Mélanges Marguerite Ulrix-Closset*. Buletin de la Société royale belge d'Etudes géologiques et archéologiques. Les Chercheurs de la Wallonie, Hors-série n°4, Liège, pp. 359-374.

³ Juvigné, E., Tallier, E., Haesaerts, P. & Pirson, S., 2008. Un nouveau stratotype du téphra de Rocourt dans la Carrière de Romont (Eben/Bassenge, Belgique). *Quaternaire*, vol. 19, pp. 133-139.

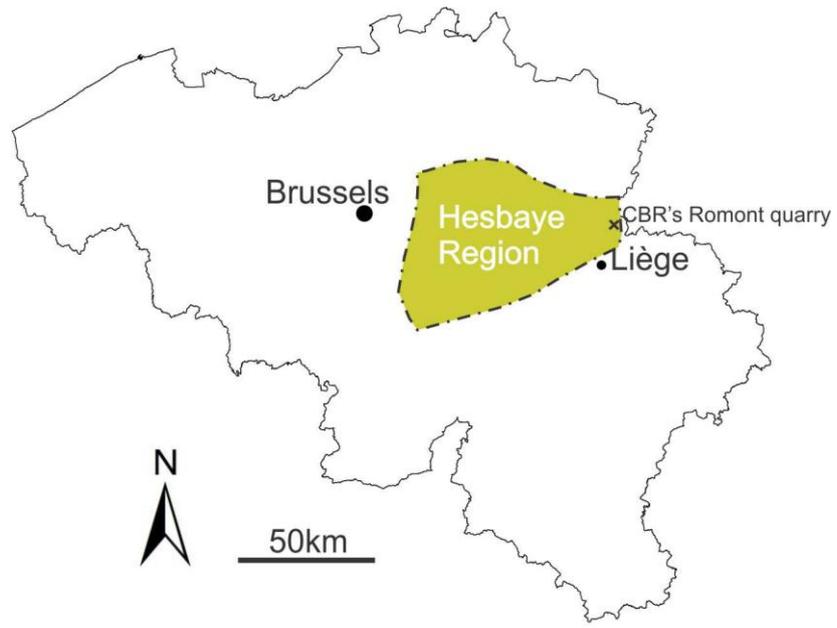


Figure 1. Location map.