

Interactive comment on “Soil archives of a Fluvisol: subsurface analysis and soil history of the medieval city centre of Vlaardingen, the Netherlands – an integral approach” by S. J. Kluiving et al.

J.M. van Mourik (Referee)

j.m.vanmourik@uva.nl

Received and published: 15 February 2016

Soil archives of a Fluvisols: Subsurface analysis and soil history of the medieval city centre of Vlaardingen, the Netherlands - an integral approach Sjoerd, Kluiving^{1,4} *, Tim de Ridder² , Marcel van Dassel³ , Stan Roozen⁴ & Maarten Prins⁴

This paper presents the results of a multi proxy analysis of 76 sediment cores of the sedimentary sequences underlying the present city of Vlaardingen. The specification of the applied methods is very clear, the results are used to reconstruct the development of the city of Vlaardingen in the context of the landscape evolution, dominated

C1

by fluvial and estuarine processes. The presented figures demonstrate clearly the distinction of the 8 identified lithofacies and the sequence of 6 sedimentary systems. The main scope of the research concerns archaeology. For the reconstruction of the development of the Vlaardingen location (including the construction of the historical terp) the authors use the archives of the fluvisols. They indicate that it is difficult to make a sharp distinction between fluvial and cultural processes, resulting in ‘natural’ beds and cultural beds. But it is important that the reconstructed interaction between natural and cultural processes, created the parent material for the fluvisols. Pedologically, it is relevant to refer to the next step in soil development. The authors mention ‘initial soil formation’. Initial soil formation, or better, the next step in soil evolution of fluvisols, can mean (1) transformation of sedimentary lamination in a more homogenous horizon, due to bioturbation, (2) decalcification, (3) increase of soil organic carbon and (4) the translocation of clay particles from the actual Be to a (future) Bt horizon. Such processes can identify initial soil development during a period of landscape stability. The first scope of the study is the development of the Vlaardingen site, that means archaeology. The results of the multi proxy analysis of the soil archives of the (palaeo)fluvisols is an important tool to realize this study. The EGU subdivision SRP (Soils as a Record of the Past) promotes such investigations in which soil archives analysis play an important role. That is the reason that my advice is to accept this paper for publication in the special volume of SOIL, after minor revision. Especially the definition of the properties and further initial processes of the Fluvisols (with prefix qualifiers as tidalic, umbric and suffix qualifiers as calcaric, clayic, silty, arenic) needs some attention.

Interactive comment on SOIL Discuss., doi:10.5194/soil-2015-80, 2016.

C2