

Supplementary material to “Improved representation of anthropogenic deposits in 3D urban geological subsurface models” By Jeroen Schokker & Joris Dijkstra (TNO–Geological Survey of the Netherlands)

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Review

The geological significance of novel anthropogenic materials: Deposits of industrial waste and by-products

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ABSTRACT

Industrial wastes and by-products are increasingly (re-)used as filling material in constructions. To enhance awareness among the geological community of the growing and widespread occurrence of deposits that contain these “novel anthropogenic materials”, this paper reviews three volumetrically important materials: (1) ash remaining from the incineration of household waste (Municipal Solid Waste Incineration bottom ash), (2) slag from steel production, and (3) the stony aggregate fraction of construction and demolition waste. We review their origin, main geochemical weathering reactions, and influence on the natural geogenic environment. These materials have properties that set them apart from

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3D subsurface modelling reveals the shallow geology of Amsterdam

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Abstract

Amsterdam is situated on the coastal-deltaic plain of the western Netherlands. Its geographical position brought the city prosperity, but also created huge challenges associated with heterogeneous and often adverse ground conditions. This paper explores the geology of Amsterdam to a depth of c. 100 m, based on the output of the 3D geological subsurface models DGM and GeoTOP. The model results are used to create a geological map of the area, to determine the extent and depth of the foundation levels that are in use for buildings in the city centre and to detect the source of filling sand on which part of the more recent expansion of the city was founded. It is shown that subsurface conditions have had a profound effect on both landscape development and historical city growth. Geomodels like DGM and GeoTOP provide an easily accessible way to obtain a better understanding of the shallow subsurface.

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