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A geological model of London and the Thames Valley, southeast England

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Abstract

Many geological survey organisations have started delivering digital geological models as part of their role. This article describes the British Geological Survey (BGS) model for London and the Thames Valley in southeast England. The model covers 4800Â km^2 and extends to several hundred metres depth. It includes extensive spreads of Quaternary river terraces and alluvium of the Thames drainage system resting on faulted and folded Palaeogene and Cretaceous bedrock strata. The model extends to the base of the Jurassic sedimentary rocks.

The baseline datasets used and the uses and limitations of the model are given. The model has been used to generate grids for the elevation of the base of the Quaternary,

the thickness of Quaternary deposits, and enabled a reassessment of the subcrop distribution and faulting of the Palaeogene and Cretaceous bedrock units especially beneath the Quaternary deposits.

Digital outputs from the model include representations of geological surfaces, which can be used in GIS, CAD and geological modelling software, and also graphic depictions such as a fence diagram of cross-sections through the model. The model can be viewed as a whole, and be dissected, in the BGS Lithoframe Viewer. Spatial queries of this and other BGS models, at specific points, along defined lines or at a specified depth, can be performed with the new BGS Groundhog application, which delivers template-based reports.

The model should be viewed as a first version that should be improved further, and kept up to date, as new data and understanding emerges.

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Keywords

3D geological modelling; London; Thames Valley; London Basin; Bedrock geology; Quaternary geology

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