Surface Geology Map of Denmark 1:200 000

Interpreted overview map of surface geology in Denmark. The map shows a countrywide classification and distribution of sediment types (mostly glacial and postglacial sediments) at the surface of Denmark.

Background and purpose

In 1989 the Danish Geological Survey published the first nationwide map of surface-near soil types. The map was published as four map sheets, with the scale being 1:200 000. These maps were in 1999 digitalized and updated. In 2011 the map was updated again with the latest knowledge in the field.

The digital map can be used in a Geographical Information System (GIS) and thereby enabling it to integrate with other digital maps and geographical data. The map can be widely used, especially with regards to research and dissemination, where an overview often is preferred over details. Digital geographical analysis and calculations are possible on a nationwide geological map.

Data description

The map contains information of the sediment types below the plow and culture layers, typically one metre below the surface. The map classifies 37 different sediment types. The eleven quaternary soil types are each shown with a different colour (Figure 1). The 26 pre-quaternary sediment types are all white.

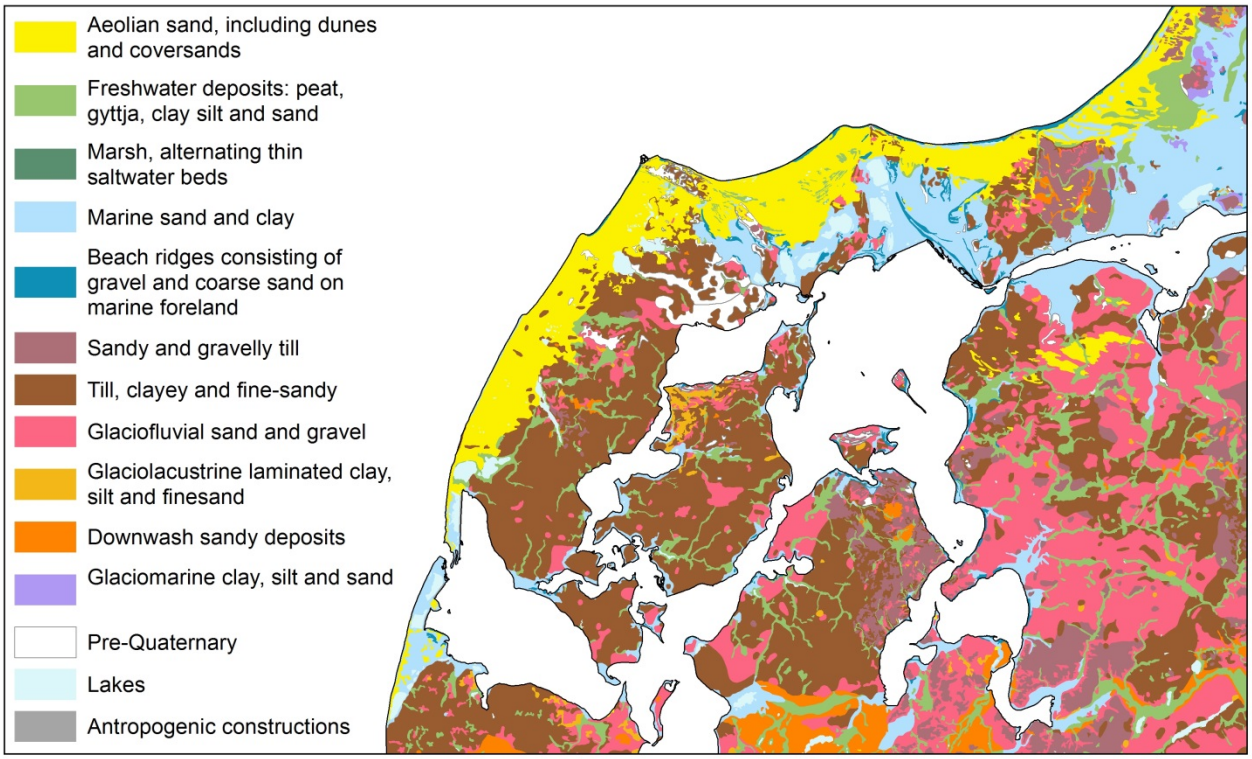

Figure 1. Section of the geological 1:200 000

Production of the theme

The digital map is mainly based on the systematical geological mapping of Denmark in 1:25 000, which as with the update in 2011 covered about 85% of the land area in Denmark. This information was for the unmapped areas supplemented with the geological data available from the drilling database of GEUS (Jupiter), information from the quaternary literature, geomorphological mapping (map of the shapes, materials and processes of the landscape) and lastly geological interpretations based on arial photos.

Line plans were made simultaneously with the publication of the printed map 1:200 000 in 1989. The plans were scanned and vectorised using the Geographical Information System (GIS) ARC/INFO. The maps were edge matched, so data around the map sheet limits match. The map sheet boundaries were deleted and the finished digitalized map now covers the entire country in one single file. The island of Bornholm, which was initially placed just east of Falster, was moved to its geographically correct position.

The coastline on the printed map from 1989 was during the digitalization process replaced with a digital coastline (D200, KMS, 1994). Since then a minority of the coastline on the map has been changed so that the coastline on the digital map of 1999 corresponds to the coastline of Denmark as it appears in the Areal Information System AIS. The largest changes to the coastline are seen at the Rømø dam, Sprogø, Kastrup Harbour and Peberholm.

Accuracy and scale

The actual accuracy of the digital maps will of course be highly affected by the quality of the available data for an area and especially whether the area has been mapped in the field or not. In general the digital map is useful for plotting with the scale 1:200 000. The general expectation of the accuracy of topographic maps with a scale of 1:200 000 is an uncertainty of 20 metres compared to reality. The accuracy of the digital geological sediment map of Denmark is hard to determine, partly because the map is based on different data sources (e.g. drillings and general mapping sheets) and partly because the boundary between two different types of soil is determined based on probing with sediment augers mostly with 100 to 200 metres between the samples. The digitizing process has in addition in certain areas produced a slight displacement of the map. This can build up to an uncertainty of up to 200 m, in some places a little more.

The map is suited for educational use and as a background layer for other mapped themes shown in the scale of 1:200 000. The map is not recommended for management or other purposes where greater precision is required.