DATED – A DATING DATABASE AND GIS-BASED RECONSTRUCTION OF THE EURASIAN DEGLACIATION

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The pattern and chronology of the deglaciation of the Eurasian ice sheet is of key importance for Late Quaternary environments, on a local scale as well as globally. The increasing resolution of glacier and climate models demands detailed digital information about the deglaciation on a calendar year time scale. These issues are addressed in the ongoing database effort DATED, which is aimed to serve as a primary source of information about the ice growth towards LGM and the following deglaciation of the Eurasian ice sheet. Pattern- and chronology data from the literature is compiled in a Geographical Information System (GIS) coupled to a relational database. The database (Database on Eurasian Deglaciation Dates - DATED 1) contains deglaciation dates with geographic coordinates and stratigraphic information, and the GIS (Digital Atlas of the Eurasian Deglaciation - DATED 2) contains digitized ice margins and other features relevant for reconstructing the deglaciation pattern. The DATED database can thus be queried using criteria such as author, time period, geographic extent, and dated material, separate or combinations thereof. The area comprised in DATED includes all land and sea areas covered by the NW-Eurasian ice sheets. DATED will be successively updated, and the first version of will be published and made available on the internet in 2007. The database is intended to contain all available dates of the Eurasian deglaciation, based on radiocarbon (^{14}C), optically stimulated luminescence (OSL), thermoluminescence (TL), cosmogenic exposure (e.g. ^{10}Be, ^{36}Cl), and clay varve records. In order to include ice growth towards the LGM, the older limit of the database is set to dates of the preceding interstadial at about 40 kyr BP. All dates in the database are also given in a calibrated format (representing calendar years), using INTCAL04 where applicable. An evaluation of the reliability of all data is done as it is entered into the database, where dates considered less reliable are flagged rather than omitted, to facilitate future re-evaluation. In order to construct a consistent and glaciologically plausible pattern in the GIS, unclear or conflicting ice margin locations are edited in collaboration with the relevant authors, using additional stratigraphic information, satellite images, and high-resolution digital elevation models. The edited ice margins are stored separately from their originals in the GIS, with thorough referencing. The main purpose with DATED is to serve as an updated source of interpreted ice margins and dates for the growth and decay of the most recent Eurasian ice sheet, in order to provide accurate digital maps with calendar year isochrones to modelers and other researchers. DATED will also provoke new research by showing where data is lacking, and facilitate re-interpretation of the deglaciation pattern. This task was initiated as a part of the British-Dutch-Norwegian project Ocean Reconstruction and Modelling of the European deglaciation (ORMEN), and is also part of the project Ice Age development and Human Settlement in northern Eurasia (ICEHUS II).