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A new calibrated deglacial ice and meltwater drainage model for Eurasia

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We present results for a new high-resolution glaciologically-self-consistent deglacial history for the Eurasian ice complex including iceberg/meltwater drainage components. The history is derived from ongoing calibration of the MUN/UofT Glacial Systems Model against a large set of Relative Sea Level data and against margin chronologies inferred on the basis of glacial geology and geomorphology (using the DATED GIS database, Gyllencreutz et al., 2007). Results from PMIP II model runs are incorporated into the climate forcing components. The Bayesian calibration provides a posterior distribution for model parameters and thereby modelled glacial histories given the observational data sets. Thus meaningful error bars are obtained. Large differences with the current non-glaciological ICE-5G model highlight the important role of ice dynamics, climatological constraints, and objective model calibration in constraining past deglaciation. The derived chronologies will provide a starting point for data-model comparison within the INQUA sponsored Meltwater routing and Ocean-Cryosphere-Atmosphere response (MOCA) project. They are also offered as a set of boundary conditions and freshwater forcings for the PMIP transient project.