The impact of margin uncertainties in the calibration of a deglacial model for Eurasia

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We present results for a high-resolution glaciologically-self-consistent deglacial history for the Eurasian ice complex. The history is derived from ongoing calibration of the MUN/UofT glacial systems model against a large set of RSL data and against margin chronologies inferred on the basis of glacial geology and geomorphology. Bayesian calibration of the model is carried out using Markov Chain Monte Carlo methods in combination with neural networks trained to model results. The calibration provides a posterior distribution for model parameters and thereby modelled glacial histories given the observational data sets. Put simply, meaningful error bars can be ascertained. Sensitivity of model results to uncertainties in the inferred deglacial margin chronology and fast flow response will be detailed, especially in the context of some stubborn regional mis-fits to the RSL constraints. Significant 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.