



Modelling the 90ka glacial Eurasian Ice-Sheet and Ice-Shelves : Role of the floatting ice on the timing of the glaciation.

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Eurasian Arctic underwent three ice sheet growth and waning during the last glacial cycle. The first glacial inception occurred around 90ka leading to the rapid build-up of large marine ice-sheet complex that desintegrated shortly after. The reconstructions of this event enlight a strong climate cooling, due to reduced insolation and ice-dammed formation, and was strongly dependant of oceanic conditions. Ice sheet models of this early Weichselian stage show the importance of these climatic variations, but most of them used a parametrisation of the grounding-line migration process. Instead, we use a 3D thermo-mechanical ice-sheet model including a full description of ice shelves and of ice streams correlated with basal hydrological processes. We decided to use these features of our model to focus on the dynamics of this ice sheet, especially over the continental shelf. We first assess the climatic (air temperatures and precipitations) and oceanic (basal melting under ice shelves) conditions that allows us to reconstruct the 90ka event. We then explore the role of ice shelves during the inception, probably enhanced by a back-stress effect. We also investigate the importance of topographic control, using several grid resolution.