In our study, we present new model simulations with a recently developed three-dimensional coupled climate - ice-sheet model (LOVECLIM - Penn State University ice-sheet model) covering the period from 240ka to 140ka (MIS 7 to MIS 6). A series of initial sensitivity experiments reveals the presence of multiple climate - ice-sheet equilibria and run-away effects. To overcome unrealistic ice-sheet growth, we enhance the basal sliding coefficient and adjust several other parameters (such as climate sensitivity etc.). More realistic simulations also show the emergence of millennial scale variability. We further test the hypothesis that millennial-scale dynamics play a pivotal role in ice-sheet growth/decay on orbital timescales.

**Key words:** Coupled climate - ice sheet modelling, interglacial, glacial inception, paleoclimate