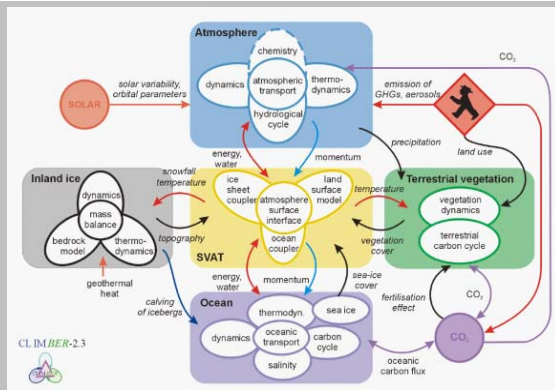


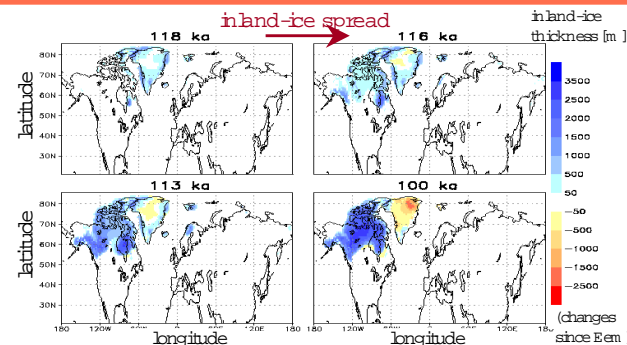
Interglacial - glacial climate transitions

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Model: CLIMBER-2.3

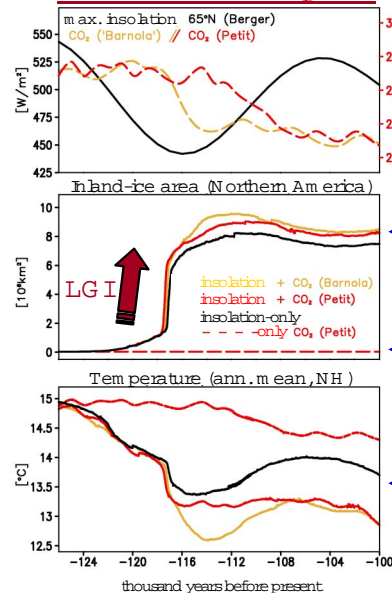
- global model of intermediate complexity;
- different modes of coupling;
- simulates hundreds of thousands of years;



Last Glacial Inception (MIS5e-d):

- simulated at around 117 kyBP;
- bifurcation (strong snow-albedo feedback);
- maximum sea-level drop about 40m;

Last Glacial Inception

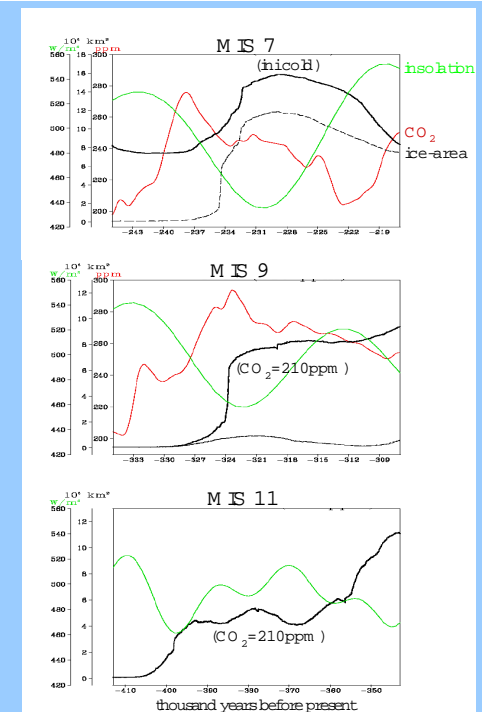
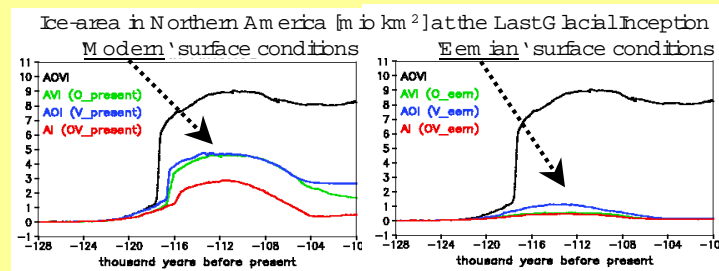


Insolation/CO₂:

- changes in insolation (mainly perihelion) necessary to simulate Last Glacial Inception;
- CO₂ alone not sufficient but acts as an amplifier;
- different CO₂ reconstructions affect transient behaviour of climate differently;

Ocean and vegetation:

- changes in ocean surface as well as vegetation state amplify ice-sheet growth;
- fixing these lower boundary conditions in the model can significantly dampen inland-ice and climate signal;



Earlier glacial inception:

- MIS 7: inception successfully simulated (inland-ice around 245 kyBP possible);
- MIS 9: inception only for CO₂=210ppm;
- MIS 11: 'inception' then simulated only after several precession cycles;

→ CLIMBER-2.3 in general successful in simulation of a glacial inception, but some improvements still needed

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