

Interactive comment on “Ice thinning, upstream advection, and non-climatic biases for the upper 89% of the EDML ice core from a nested model of the Antarctic ice sheet” by P. Huybrechts et al.

Anonymous Referee #2

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This paper presents a chronology of the EDML ice core constructed from a nested ice flow model. This model consists of a higher-order ice flow model nested into a large scale model of the whole Antarctic ice-sheet. From the results, the non-climatic bias, introduced, firstly, by the change of the surface elevation and, secondly, by the difference between the actual surface elevation at the drilling place and the surface elevation at the place of deposition are evaluated. Based solely on a flow model with no constraint from any age markers, the proposed chronology is found to be very close to the official EDML1 chronology.

This is a good paper, very well presented, and which contains an interesting modeling

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approach to date the EDML core. I think this paper can be published as it is, and I have only minor remarks/corrections for the authors.

- line 5 : annual accumulation rate should be given in cm yr^{-1} of ice equivalent as in line 22 and in Figure 2.
- paragraph 2.3: it is not really clear if the FSM is run diagnostically (only Stokes) or prognostically (Stokes and free surface)? Some complements relative to the value of the physical parameters adopted for the models should be given (may be in the form of supplement material), like the viscosity, enhancement factor depending or not of the period of deposition , the temperature dependency of the viscosity, the sliding parameter, the conductivity, ... Are they identical in both models? Also, regarding the time step, is the FSM runs with the same time step than the LGM model?
- page 707, line 11: m/yr should be m yr^{-1}

Interactive comment on Clim. Past Discuss., 3, 693, 2007.

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3, S374–S375, 2007

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