

Interactive comment on “Orbital and freshwater forcing during the last interglacial: analysis of climate and vegetation response patterns” by G. Lohmann

Anonymous Referee #1

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This article presents a ca-1600-yr long simulation using the atmosphere-ocean ECHO-G model. The forcing is designed to reproduce the astronomical forcing from 130 kyr BP to 30 kyr AP. The LPJ vegetation model is used to predict the dynamical evolution of insolation. Ice sheets are not taken into account. The paper also briefly discusses a freshwater hosing experiment with the ECHAM3/LSG model.

I recommend rejection of this article for the following reasons.

1. Unsatisfactory quality proof prior to submission. There are several corrupted sentences (p. 1223 line 15); repeated sentences (page 1224), lack of rigor in sentence construction (p. 1225, line 2; p. 1230, line 4), error in scientific argument (p. 1228,

line 25), editorial mistakes (p. 1229, line 6), apparent inconsistency between text and figure (p. 1228, lines 15 and 16).

2. Lack of significance of scientific results. Two results emerge : the modulation of the icelandic low by insolation, and a winter-insolation signature on summer SSTs. However, these two results are already documented in the recent literature (by Lohman and/or co-authors for the Icelandic low and by Liu et al. (2002) for the winter-insolation signature). The present article does not add significance to previous papers by means of additional analyses, mechanism decomposition of statistical tests. The ECHAM3/LSG freshwater hosing experiment does not seem original either.

3. Inadequacy of the experimental setup : ignoring the evolution of the ice sheets in an experiment covering the last 140 kyr is difficult to defend. The 110 kyr BP - 20 kyr AP bit of the experiment is hardly discussed. Only the surprisingly noisy character of vegetation fractions is alluded to, without further explanation (p. 1229, lines 28-29).

4. Confusion in the discussion of the experiment results : For example, p. 1232 line 5 to 11 discuss the possible occurrence of freshwater events, while line 12 mention 120 kyr BP to 115 kyr BP temperature differences (presumably obtained from the ECHO-G) experiment.

I certainly recommend the author to carefully re-consider the structure of the manuscript and go through the process of internal review before a new submission.

ref:

Z.Liu, E.Brady, and J.Lynch-Stieglitz. Global ocean response to orbital forcing in the holocene. *Paleoceanography*, 18(2):1041, 2002.

Interactive comment on Clim. Past Discuss., 2, 1221, 2006.