

Interactive comment on “Technical Note: *n*-Alkane lipid biomarkers in loess: post-sedimentary or syn-sedimentary?” by M. Zech et al.

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This letter constructs my review of the manuscript titled “*n*-Alkane lipid biomarkers in loess: post-sedimentary or syn-sedimentary?”

The subject of this manuscript is a quantitative estimation of the post-sedimentary contamination into the Loess-paleosol sequences (LPSs), based on a ¹⁴C-dating of *n*-alkane fractions extracted from 4 depths of the loess paleosol samples. I recognize that the subject of this manuscript is interesting and that to clarify it is an important issue in biogeosciences. However, very unfortunately, the chemical approach using this manuscript is insufficiently to discuss it: since the Authors have applied ¹⁴C-dating for the *n*-alkane fractions but not for individual *n*-alkanes, the observed data and associated discussion accompany with much uncertainty. For example, as shown in Fig. 1,

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there are not only long-chain n-alkanes but also much abundance of both short chain n-alkanes and UCM in the investigated n-alkane fractions, in which these contaminations significantly affect the results of ^{14}C -dating. Although the Authors have argued that short-chain n-alkanes (e.g., C18 and C20) are considered as thermal products of plant leaves, in general they are multiple sources e.g., from lichen and moss. I strongly feel that the authors can access this issue very much precisely if the authors use compound-specific ^{14}C -dating for individual n-alkanes. The authors have said “quantitative estimation” in a number of places in the manuscript, but they have never discussed about how much errors include in the estimate. If the authors cannot use the compound-specific ^{14}C -dating, at least the authors should discuss the magnitude of errors in the estimation very much carefully in the revised manuscript.

I feel significant revision is necessary if this manuscript obtains the standard quality for publication in Biogeosciences Discuss.

Sincerely,

August 7, 2012, Yoshito Chikaraishi

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