

## ***Interactive comment on “The reconstruction of paleo wind directions for the Eifel region (Central Europe) during the period 40.3–12.9 ka BP” by S. Dietrich and K. Seelos***

**S. Dietrich and K. Seelos**

sdietrich@uni-mainz.de

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Answer to the interactive referee comments of Anonymous Referee #2 (Received and published: 10 November 2009)

Thank you so much for your really constructive comments on our manuscript, they will help to improve it considerably.

1. The referee is of the opinion that our artificial testing-suite (analyzed samples with an carbonate content of 10–90 wt.-%) may not be consistent with the real carbonate content of our time series. In addition, he comments that we should provide an error estimation.

Because of the high correlation coefficient and the straight linear trend in our regression plot, we assumed that the results of five test samples were enough to prove the reproductively of our method. However, we appreciate the criticism of the reviewer about the missing error estimation for every single sample. We will add a new analysis of test samples with finer graded steps of carbonate concentration especially below 10 %. Error estimations are also given.

2. Referee #2 discussed the topic of the frequency of easterly wind layers, using 100-year bins, instead of presentation as single storm events.

We agree with the referee that the mentioned section of the text might cause confusion. It is possible for us to detect east wind layers, but it is not possible to prove every single storm event. We measured the relationship between the thicknesses of carbonate containing layers (east wind layers) and nearly carbonate free sequences (west wind layers) in percent. The frequency analysis (100 year bins) depends on a continuous age depth model based on tuning and datings. Therefore we changed the sentence in the text (page 2165, line 26) to ‘...up to 160 identified east wind layers per century’. Binary data are perfectly suitable for frequency analysis

3. In RC2 it is mentioned that we should be more careful with the generalized phrase "paleo wind directions", since we show differences in the frequency concerning easterly and westerly wind layers in our study.

We will clarify the generalized phrase of "paleo wind directions" and will change it to "easterly winds" and "non-easterly winds". The title could be changed into "The reconstruction of easterly wind directions for the Eifel region (Central Europe) during the period 40.3 to 12.9 ka BP".

4. It is mentioned in the comments of the referees #1, #2 and in the short comment of Urs Ruth, that our discussion of the east-wind events in a climatological context does not seem really consistent with the data.

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About the coupling of east wind systems and HE please read the reply to the referee comments of P. Antoine (main question #4).

5. Referee #2 criticises the structure of the text.

We accept the point, that the numbered summary of results at the end of the text (chapter 4. conclusions) should be added in the results and discussion chapter. Now, the last paragraph of our conclusion includes an outlook with suggestions for the whole paleo climate community.

6. Referee #2 gives following minor comments:

a. ..., that we would use the older ss09sea time scale instead of GICC05: The core De3, which is used in this study, is part of the ELSA dust stack '(Seelos et al. 2009). The stack covers a time period from 0–133 ka BP, while the GICC05 timescale covers only the last 60 ka. Thus, we decided to use the older ss09sea timescale for the investigated period. Furthermore, we compare the section to the micro particles record of Ruth et al., who also used the older time scale for the NGrip ice core.

b. ..., that we should improve our description of the method. We will enhance the description of the method and will update our figure 2 (see comment 2).

c. ..., that we should clarify the location of the carbonate source in the map (Fig. 1). We will simplify the map with highlighted signatures for carbonate/limestone units and loess depositions.

d. ..., that we should enlarge our figures and use a point as decimal separator. The figures are in high resolution. Therefore, it is no problem to enlarge them in keeping with the general layout guidelines of the journal. Thanks to the Referee #2 for the comment about the decimal separator.

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Interactive comment on Clim. Past Discuss., 5, 2157, 2009.

CPD

5, C1108–C1113, 2010

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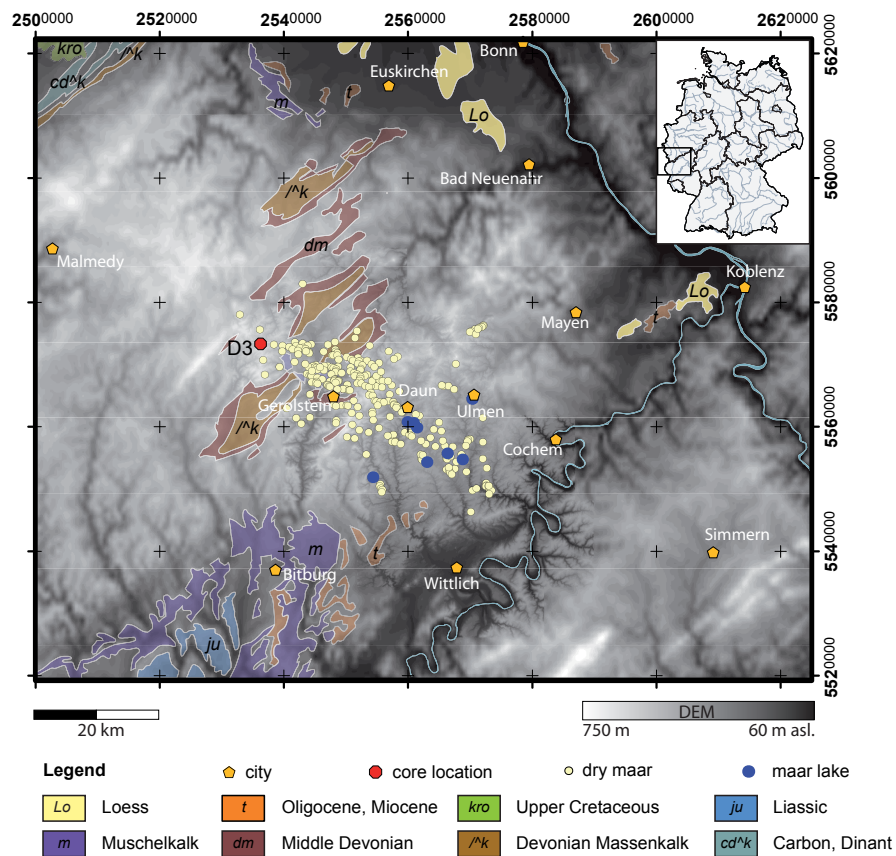


Fig. 1.

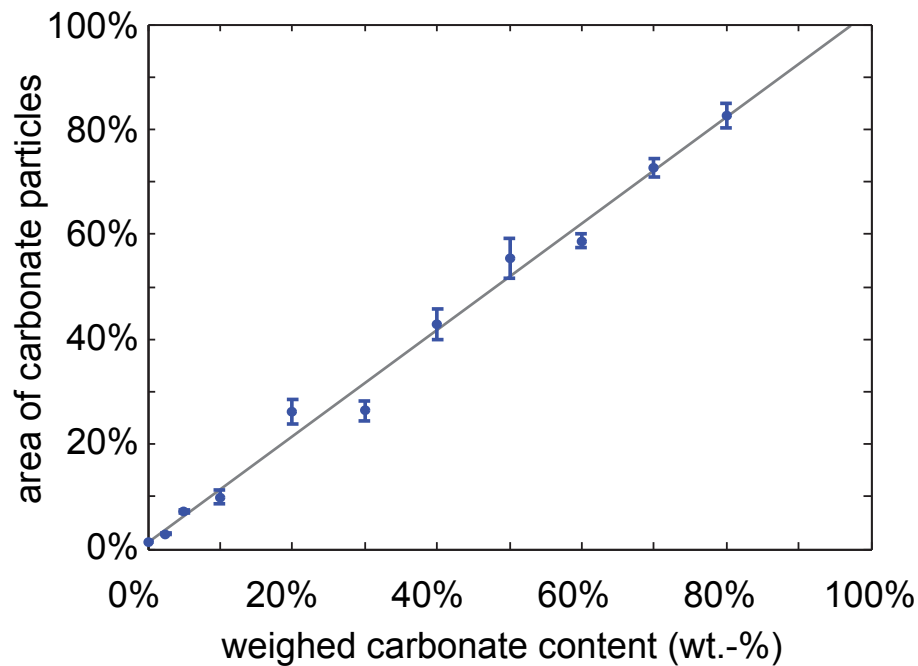
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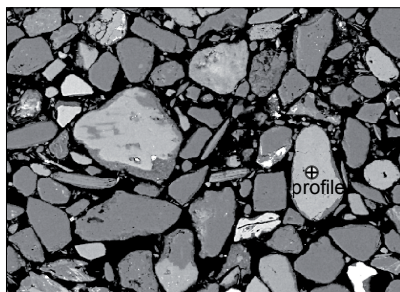
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(a) electron image  
DE3 09.768 m



100  $\mu$ m

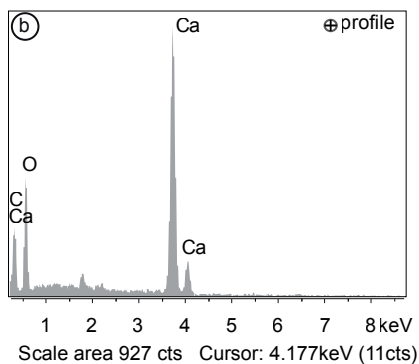


Fig. 3.