

Dear reviewers and editors,

In the interactive discussion we provided point-by-point answers to the reviewer's comments including descriptions of actions made, and reasons for our decisions, and answers to further questions. We have therefore decided to list here only the changes made, including references to the lines in the updated manuscript.

Changes made related to Reviewer#1's suggestions

Action related to comment on line 28:

Line 28/29: changed to also presents preliminary

Action related to comment on line 50:

Line 51: age and reference of the age was included.

Action related to comment on line 95:

Changed in lines 97, 279 and 296 as suggested.

Action related to comment on line 99:

Line 101: The word is deleted

Action related to comment on line 101:

The position of lines in Fig. 3 (=former Fig. 2) were corrected. We added information in section 3.1

Action related to comment on line 140:

Lines 146/147: The sentence is changed.

Action related to comment on line 142:

The complete section is reorganized following the suggestions of Reviewer#2. The related text passage is now part of section 4.4.

Action related to comment on line 151:

Lines 162/163: The references of the individual records are presented.

Action related to comment on lines 151-167:

Lines 160-179: The bullet points were changed to sub-sections.

Action related to comment on line 211:

We discarded the results of one sample with very different declination directions and to keep the complete data of the sample that shows only somewhat misaligned directions. Accordingly, the text sections were corrected.

Action related to comment on line 263:

Line 340f: We revised the sentence following the suggestions of reviewer#2.

Action related to comment on line 276:

We revised section 4.4 (=former section 4.3) and included new evidence. Until the proof is provided that data represents the RPI, we use other terms.

Action related to comment on line 278:

Line 389f: We make now aware of the change in normalizer intensity and discuss the implications of this issue.

Action related to comment on line 288:

Line 403ff: We explain the reasons for the assignment of the Mono Lake excursion to the RPI low at 21.3 mcd in greater detail.

Action related to comment on line 297:

We changed the order of the sections.

Action related to comment on line 336:

We explained now in greater detail in section 4.1 (former section 4.2) why the radiocarbon dates are not used as fixpoints.

Action related to comment on line 357ff:

Lines 469ff: We checked the text thoroughly and changed the wording. We think it is clear now that the RPI low is meant that is dated by 14C date G.

Action related to comment on line 419:

We have to disagree with this statement, since 8a (= former 6a) occurs for the first time in line 478 (in the previous version line 379), while Fig. 8b (= former 6b) is mentioned for the first time in line 532 (in the previous version line 432).

Action related to comment on line 469:

Line 580: We agree change the wording accordingly.

Changes made related to Reviewer#2's suggestions

Action related to comment on the abstract:

Line 25ff: We corrected this issue in the short summary, the abstract, and in the introduction.

Action related to comment on line 40:

Line 40: We use the wording as suggested by Reviewer#2. For the remaining issue of this comment, please see our answer in the interactive discussion.

Action related to comment on line 46:

Please see our answer in the interactive discussion

Action related to comment on line 134

Please see our answer in the interactive discussion

Action related to comment on Section 3.4

To follow the advice of Reviewer#1 and #2 we will reorganize the order of the sections in the Results and discussion chapter as follows:

- 4.1) Basic chronology (spanning a rough time frame)
- 4.2) Magnetic mineralogy (shows the suitability of the sediment for RPI)
- 4.3) Remanence acquisition (introducing the lock-in issue; position of the section was suggested by Reviewer#1)
- 4.4) PSV+RPI (description and discussion of the data)
- 4.5) Correlation (Discussion on reference records, correlation of the data and final age-depth model)
- 4.6) Implications

- ❖ We shifted the part of section 3.4 which might be recognized as part of the discussion to section 4.4 (former section 4.3).
- ❖ Line 162: The missing references were included.
- ❖ Line 444: We included a statement in which we assume GLOPIS to precisely show the variations of the EMF. Thereby the age-depth model of GLOPIS and the related records shown can be transferred to Co1401
- ❖ Line 165/166: We corrected the information on K/Ar or Ar/Ar ages related to GLOPIS.

Action related to comment on line 210:

We discarded the results of one sample with very different declination directions and to kept the complete data of the sample that shows only somewhat misaligned directions. Accordingly, the text sections were corrected.

We deleted the part of the sentence to avoid ambiguities.

Action related to comment on line 259f:

We revised the section to make sure all readers understand the mechanism we propose.

Action related to comment on line 255:

Lines 323f: We recalculated the PCA of a number of samples using more steps (without obtaining other results). The new values are used now in the manuscript. We explain now in greater detail which steps are used and for which reason. The MAD is now included.

Action related to comment on line 261:

We include a recent value of the inclination (line 343). Today's declination is mentioned in line 143. We state now only the mean and medium inclination values excluding the geomagnetic excursion.

Action related to comment on line 266:

Line 344f: We included a short explanation and the keyword "error propagation" in brackets.

Action related to comment on line 268:

Line 349: We clarified that the movement planes are not situated in the samples.

Action related to comment on line 269:

Line 351: We corrected the term as suggested.

Action related to comment on line 275:

We revised section 4.4 (=former section 4.3) and included new evidence. Until the proof is provided that data represents the RPI, we use other terms.

Action related to comment on around line 277:

Please see the Action related on the comment to line 375 below

Action related to comment on 284f:

Line 400ff We included an additional figure (Fig. 6) that shows the low normalized remanence intervals; i.e. Laschamps and Mono Lake and re-addressed the fact that 14C age H is close to these intervals. We completed the discussion regarding the Mono Lake.

Action related to comment on line 335:

Lines 429ff: Following Reviewer#2's suggestions, we rephrased the entire section 4.5 (former 4.4).

Action related to comment on line 355ff

Line 403ff: We explain the reasons for the assignment of the Mono Lake excursion to the RPI low at 21.3 mcd in greater detail and corrected the wording as suggested.

Action related to comment on around line 375:

We made changes in all text sections related to the Holocene and greigite to make the reader understand that we do not expect this part of the core to be unreliable nor unsuitable to the method. We highlight now the much larger opportunities for discussion of the Holocene part in an own extensive study, which is actually already on its way.