

General comments:

This paper addressed clearly study history on Diexi barrier lake. Based on the study history, it can be found that the researching concept of relationship between paleoclimate and paleoseismic events is new and valuable. Lots of studying methods were used in this paper, including sporo-pollens, organic matter, carbon and oxygen isotope, calcium carbonate and particle size, and AMS-¹⁴C. In the section of Discussion, the results from different methods are consistent. So the conclusions from the paper are credible. Further more, the researching methods and conclusions will be a profound guidance to the relevant study in the further.

Detailed general comments are listed as follows:

This paper addresses relevant scientific questions within the scope of NHESS.

The paper presents new data and novel concepts, ideas, and results.

They are up to international standards.

The scientific methods and assumptions are valid and outlined clearly.

The results are sufficient to support the interpretations and the conclusions.

The author reaches substantial conclusions.

The description of the data used, the methods used, the experiments and calculations made, and the results obtained, is sufficiently complete and accurate to allow their reproduction by fellow scientists (traceability of results).

The title clearly and unambiguously reflects the contents of the paper

The abstract provides a concise, complete and unambiguous summary of the work done and the results obtained

The title and the abstract are pertinent, and easy to understand to a wide and diversified audience.

The abbreviations and units are correct, and they are used correctly. There are not nearly mathematical formulae, symbols in this paper. The abbreviations and units are not numerous.

The size, quality and readability of each figure are adequate to the type and quantity of data presented.

The author gives proper credit to previous and/or related work, and he/she indicates clearly his/her own contribution.

The number and quality of the references are appropriate.

The references are accessible by fellow scientists

The overall presentation is well structured, clear and easy to understand by a wide and general audience.

The length of the paper is adequate.

There is not any part of the paper (title, abstract, main text, formulae, symbols, figures and their captions, tables, list of references, appendixes) that needs to be clarified, reduced, added, combined, or eliminated.

The technical language is precise and understandable by fellow scientists.

The English language is of good quality, fluent, simple and easy to read and understand by a wide and diversified audience

There is not supplementary material in this paper.

Specific comments:

1 In section **Geological background**, author said “ **The research area is located at northwestern Sichuan Plateau at the western edge of Tibetan Plateau...**” (Row 19, Page

2691). In section **Discussion**, author said “...we are considering that the climate change and geology environmental evolution of the eastern edge of Tibetan Plateau...”(Row 24, Page 2684). Please give more accurate description about the geography location of research area.

2 In Fig.1, the location of Diexi barrier lake can not be found. If it is necessary, please supply it.

3 In section **Methodology** (Row 6~10, Page 2686), please give nationality for every criterion so that audience can know the application scope for every criterion.

4 Please give the scale for both Fig. 4 and Fig. 11.

Technical corrections:

1 Row 24, Page 2689, the word Refering should be Referring.

2 Row 21, Page 2691, the word chage should be change.