

Interactive comment on “A Quaternary Fault Database for Central Asia” by S. Mohadjer et al.

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Dear Dr. Haller,

Thank you very much for your constructive feedback. Below we address your comments. Q stands for questions raised by you. R stands for our reply to your comments.

Q: Technical corrections: Reference citations such as P4 lines 8 and 10. Is use of “and” correct?

R: The use of “and” is most likely not correct. We have changed this.

Q: P5 Line 1. Change to “limited to only a few parameters.”

R: We have changed this.

Q: P5 Line16. “different” is not needed and change “datasets” (this line) or “data sets”

in table title to be consistent.

R: We have changed this.

Q: P5 Lines 17-20. The terms “active” and “segment” should be avoided in this paper. The term “active fault” does not have a strict definition but typically does not include all Quaternary faults. In most active tectonic regions, the term typically applies to Holocene faults; in less active regions, older Quaternary faults (generally 10–200 k.y. old) may be included. “Fault segment” connotes characteristic rupture behavior; however, I think you are simply trying to convey the number of lines in the spatial data. I suggest you change the sentence to: “Published maps of fault in the regions identify the location of 1196 Quaternary (<2.6 Ma) traces that define the location of 122 faults.” (However, the search page shows that there are 120 faults in the nine countries listed.) Also revise Tables 1 and 3, accordingly.

R: Thank you for pointing this out. We have modified the text to reflect the above comments (Page 4, lines 15-19). The number of faults with attributes is now shown as 123 faults to match the fault number shown in the current version of the online database. The term ‘fault segment’ is replaced with ‘fault trace’ and the term ‘active fault’ is replaced with ‘Quaternary fault’ throughout the manuscript, and in Table 1 and 3.

Q: P6 Line 25 delete “then”

R: We have changed this.

Q: P6 Line 26–27 I suggest replacing the sentence with “The faults are digitized and attributed in ArcMap.”

R: We have changed this.

Q: P8. Take care in using “slip rate”. The vast majority of studies document either horizontal- or vertical-displacement rate, not slip rate (although they report it as such). Slip rate is strictly defined as rate of slip measured on the fault plane and incorporates

both concepts of dip of the fault and rake of motion at depth and is a source parameter in seismic-hazard assessments.

R: Yes, this is an important distinction and we thank you for pointing this out. The text has been changed in section 2.3 to make this clear to readers. In the database, we report values that are defined as slip rates in original studies, and therefore are on the plane of the fault. These rates reflect the predominant sense of slip for faults. Other important information such as reported component of slip and displacement rate is documented in the comments fields.

Q: Line 18. Replace sentence with “Slip rate data are important in constraining seismic hazard as they are used to estimate earthquake rate.” Then explain exactly what the Quaternary rates and geodetic deformation rates convey.

R: We have changed this.

Q: P9 Line 6. Personally, I would love to see a table of the 20 faults and a comparison of their respective rates in this paper.

R: We have created a table that shows this information. A more detailed analysis of the slip rate data is presented in a companion manuscript that is currently in progress. A thorough analysis of slip rates here would dramatically extend the length of the manuscript in a different direction than its intended purpose.

Q: P9 Line 20. delete “about” and change “10 s” to “tens”

R: We have changed this.

Q: P10 Line 8. I think you mean that the earthquake catalog includes magnitude and depth attributes and are shown on the interactive map as stated. The use of “sorted” confused me, change to “shown”??

R: We have changed this.

Q: P10 Line 21. Your graph makes the obvious point that the catalog is still very

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incomplete at small magnitudes ($M < 5$). I suggest you substitute “a more complete overview” with “a slightly improved catalog”.

R: We agree and have changed this part of the sentence to “an improved catalog” instead of “a more complete overview”.

Q: P10 Line 22. Change “50 km below surface” to “up to 50 km below the surface”. The ANSS catalog has lots of shallow earthquakes.

R: Good point. We have changed this.

Q: P11 Line 10. “Tables 2 and 3”.

R: We have changed this.

Q: P12 Lines 14–15. Replace “limited set of data” with “limited studies”.

R: We have changed this.

Q: P16 Line 3. I prefer you use my nickname Kathy instead of Kathleen (thanks).

R: We have changed this.

Q: All citations in the text are listed in References; however, I did not review for appropriate use of journal style. References contain inconsistent capitalization of journal titles. Refer to the journal’s guidance regarding citation format.

R: The manuscript has been typeset by the Copernicus Publication Production Office. We believe this issue is resolved in the discussion version of the manuscript.

Q: P21 Line 10 correct paper title “surrounding regions”.

R: We have changed this.

Q: Table 3. For both slip rate fields replace “original study” with “original studies” and review usage of “segment”.

R: We have changed this.

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Q: Figure 4. Replace “construction” with “development” in caption.

R: We have changed this.

Q: Figure 8. I prefer acronyms to appear alphabetically in figure captions; they are easier to find.

R: Good idea. We have changed this. Also, “HYF” is now the acronym for the Haiyuan Fault. This is reflected in Figure 8 too.

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