

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

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A Quaternary fault database for Central Asia is a discussion paper that announces the release of an important digital compilation of data on possible sources of large earthquakes in a tectonically active part of Asia. The paper is well written and includes explicit examples that guide readers to some of the best records in the database. This new database covers nine countries and the companion web interface is well constructed and easy to use. Users can select features from an interactive map that shows the faults on a shaded with a clickable catalog of earthquakes or a text-driven query page. The compilation includes data from published studies similar to the U.S. Quaternary fault and fold database. Interestingly, both compilations show similar statistics. Only about one fourth of all mapped Quaternary faults have been addressed with detailed studies that result in deformation rates. This compilation is an important first step

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in developing source characterization for seismic-hazard assessments in the region.

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

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

P5 Line16. “different” is not needed and change “datasets” (this line) or “data sets” in table title to be consistent.

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.

P6 Line 25 delete “then”

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

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. 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

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convey.

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.

P9 Line 20. delete "about" and change "10 s" to "tens"

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"??

P10 Line 21. Your graph makes the obvious point that the catalog is still very incomplete at small magnitudes ($M < 5$). I suggest you substitute "a more complete overview" with "a slightly improved catalog".

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

P11 Line 10. "Tables 2 and 3"

P12 Lines 14–15. Replace "limited set of data" with "limited studies"

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

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.

P21 Line 10 correct paper title "surrounding regions"

Table 3. For both slip rate fields replace "original study" with "original studies" and review usage of "segment".

Figure 4. Replace "construction" with "development" in caption.

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

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