Response to referee Kirsten Elger of the manuscript
"China Active Faults Database and its Web System"

We are very grateful to referee Kirsten Elger for their constructive comments that greatly improved the manuscript. Below is a point-by-point reply (RC: referee comment; AR: author reply)

RC: Line 33
Where in China? Or do you mean more than one block?
AR: "The Tibetan Plateau block in western China and the Ordos block in Central and East China." We added these words to the sentence.

RC: Line 48 "The earliest historical earthquake records worldwide were obtained in China."
When?
AR: 1860 BC. We delete this sentence, as it is not important in this article.

RC: Line 51. "Already in the 2000s, the China Earthquake Administration organized the compilation of an active tectonic database (Qu, 2008)."
Do you mean database or map? A scale fits better to a map, while a database is more what you are describing in your article
AR: Thank you for your comment. It is a database downloadable at the NEDC (sub-center in IG, CEA), 2023, http://datashare.igl.earthquake.cn/map/ActiveFault/introFault.html
The data's spatial accuracy is similar to a map of 1:4,000,000. The database also has an attribute table with more information than a map. We changed this sentence to "The China Earthquake Administration built a 1:4,000,000-scale active tectonic database (Qu, 2008) in the 2000s."

RC: Line 53-55. "A large amount of survey work should be carried out because China is situated in the Circum-Pacific and Himalayan-Mediterranean 55 seismic zones, producing strong neotectonic and frequent seismic activities." This sentence is difficult to understand. Do you like to say the following? "In the following years, a large number of field surveys has been carried out to investigate the active neotectonic and seismic activities of the Circum-Pacific and Himalayan-Mediterranean seismic zones in China. "I am adding this as a suggestion.
AR: We appreciate your excellent suggestion. We changed the sentence to "In the following years, several field surveys have been performed to investigate the active neotectonic and seismic activities of the Circum-Pacific and Himalayan-Mediterranean seismic zones in China."
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RC: Line 56. "mapping projects". Is it possible to cite some results of these projects?
AR: Thank you for highlighting this. Here are the relevant citations: "Yang et al., 2018a, 2018b, 2020; Huang et al., 2021a, 2021b; Lei et al., 2008; Chai et al., 2011, Xu et al., 2015."

RC: Line 60. "(2001–2003)" Citation?
AR: Thank you for highlighting this. We have added citations: "2) active fault prospecting in urban regions and their earthquake risk assessments, such as "Urban active fault experimental prospecting" (2001–2003)(Pan et al., 2002; Wang et al., 2002) and "Seismo-active-fault prospecting technology system in China" (2004–2008) (Wang et al., 2004; Deng et al., 2007;);"

RC: Line 68-70. "Those project databases include data associated with the geophysical prospecting, drilling, offset-landform measuring and sample dating, geometric and kinematic parameters of the exposed and blind faults, paleo-earthquakes, their occurrence ages, and recurrence intervals." Do you mean the radiometric age dating of samples?
AR: Thank you for your query. We corrected sample dating to "age dating (e.g., cosmogenic nuclides, OSL, ESR, or ^{14}C used for dating offset-landform, and OSL or ^{14}C used for dating dislocated-strata in trench)."

RC: Line 70-72 "The data types include two-dimensional Geographic Information System (GIS) data, photographs, geological interpretation pictures, geophysical prospecting data, electronic literature, and scientific reports." What do you mean with "pictures". drawings of geological cross-sections or profiles?
AR: Thank you for your query. We changed "geological interpretation pictures" to "geological photos with interpretated faults and illustrations"

RC: Line 72 "electronic literature" If you provide copies of scholarly literature, you have to make sure that the provision of these via your database is a "secondary publication" and this must comply with the copyright of the articular. Adding the citation is okay and required, but not the provision of a PDF copy of the articles.
AR: Thank you for your suggestion. The databases stored articles with copyright and did not provide literature copies. We corrected the sentence.

RC: Line 77. "database" Please add a link or citation.
AR: The link has been added to references.
CEFIS (V2)
https://data.activetectonics.cn/arcportal/apps/webappviewer/index.html?id=684737e8849c4170bbca14447608c451, last access: 12 May 2023.

RC: Line 79. "the extensive use of the database" In which sections of the article?
AR: Section 3.9. We changed this sentence to "In addition, several classical application cases in Section 3.9 are presented to demonstrate the extensive use of the database.".

RC: Line 85-89. Is this a repetition of the detailed overview in the introduction? Then it can be shortened at either place. I would summarize the information in the "introduction" and list all projects here in this section with respective citations. There is no need for duplication of information.
AR: Thank you for the suggestion. The first half of the second paragraph of Section 1 "introduction" introduced "The Active Tectonic Map of China (1:4 000 000)" (Deng et al., 2007) and was repeated with the sentences: "Deng et al. (2007) systematically summarized the classical tectonic characteristics, such as the latest slip rate and age of faults, historically strong earthquake activity, and co-seismic surface ruptures in mainland China and adjacent sea areas. In addition to the print edition, a geospatial database based on the map (Deng et al., 2007) was constructed (Qu et al., 2008)." We deleted these sentences.
Other sentences are not repetition. Lines 85-89 is an introduction of nationwide active tectonics and fault maps from 1976 to 1987. The latter half of the second paragraph of Section 1 "introduction" introduced projects with digital databases from 2001 to 2019.

RC: Line 89. "a specific periods" Periods or regions? Moreover, do you mean geological periods or different states of research (between 1978 and 1987)?
AR: We corrected "a specific periods" to "specific periods". We added the sentence "Every map summarized all of the research as much as possible before its publication date" into the paragraph.

RC: Line 77-78. "Currently, it can be freely downloaded online (NEDC (sub3 https://doi.org/10.5194/essd-2023-119 Preprint. Discussion started: 6 June 2023 c Author(s) 2023. CC BY 4.0 License. center in IG, CEA), 2023), and scientists have updated this map based on new finding" Does "it" refer to the Map or the database?
AR: "It" refers to the database. We changed "it" to "the database".

RC: Line 102. "SMCAR". Please explain the abbreviation.
AR: This abbreviation first appears in Line 91. "Seismotectonic Map in China and its Adjacent Regions (1:4,000,000)"

RC: Line 103. "Chinese mandatory standard GB/T 18306-2015" Is there a citation/rereferred existing?

AR: We appreciate your query. This citation exists and is in Chinese. Here are some links on the government website.

https://openstd.samr.gov.cn/bzgk/gb/newGbInfo?hcno=EC0585F90CA21ABE02826394F266B623

or

https://std.samr.gov.cn/gb/search/gbDetailed?id=71F772D80C50D3A7E05397BE0A0AB82A

AR: Line 116. "115 project databases." Is there an overview table on the project databases?

RC: Thank you for this query. I have listed these projects and updated the number of databases in the attachment (an Excel file) and Tables A1 and A2 in the article.

AR: Line 127. "research references" Is there an overview?

RC: Thank you for this query. Some research references are introduced in the final sentence of Section 3.5. We change the sentence to "The CAFD (2022) is obtained from numerous surveys (Section 3.5) and research references (Xu et al., 2008a, 2008b, 2009a, 2009b; Chen et al., 2009; Xu et al., 2014a, 2014b; Xu et al., 2000; He et al., 2013; Shu et al., 2016, 2020; Li et al., 2019)"

AR: Line 159-161. "In earlier research, the positional precision of the exposed faults was restricted by funding and locator devices, and interpreted top breakpoints of the blind faults from low-resolution seismic petroleum exploration profiles restricted their positional precision." This sentence is hard to understand.

RC: We appreciate your insight. Accordingly, we have rewritten this sentence as per your suggestion as follows. "In earlier research, the low-resolution seismic petroleum exploration profiles caused the low accuracy of the interpreted top breakpoints. Accordingly, the accuracy of positional precision of the blind faults was not precise. The locator devices with a low positioning accuracy limited the accuracy of positional precision of the exposed faults. The observation sites had a lower density than currently because of less funding, thereby causing a low positional accuracy."

AR: Line 162. "the exposed and blind fault survey methods." Can you please add a reference for this method? Or is it described in Xu et al., 2016?).

RC: We appreciate your comment. The methods were introduced in Sections 3.2 and 3.3. We have rewritten this sentence. "The regional fault survey project databases (1:250 000–1:50 000) are based on quantitative methods. These were classified as the exposed fault survey method (Section 3.2) and blind survey methods (Section 3.3), and they guaranteed a better data quality and accuracy than the nationwide CAFD (2015) (Xu et al., 2016)."

AR: Line 171. "remote sensing images with meter-level resolution." Please specify which data you have used.

RC: Thank you for your comment. We add example of remote sensing images: "remote sensing images with meter-level resolution (Quickbird, worldview, SPOT, etc.)"

AR: Line 172. "and vertical resolutions of > 5 m." Please specify the DEM sources.

RC: We appreciate your comment. We have rewritten the sentence. "First, remote sensing images with meter-level resolution (Quickbird, worldview, SPOT, and so on) and DEMs with horizontal and relative vertical resolutions of $\leqslant$ 37.5 m (Quickbird, worldview, SPOT, and so on) were used to mark surface deformations or offset landforms (fault scarps, dislocated gullies, fault valleys, pull-apart basins, pressure ridges, terraces, alluvial or fluvial fans and so on) and plan geological survey sites, lines, and areas."

AR: Line 175. "Global Navigation Satellite System." Did you use differential GNSS?

RC: We appreciate your comment. We used hand-held GPS receiver, which received signals from satellites. It is not differential GNSS. We added "hand-held GPS receiver" to the sentence.

AR: Line 178-179. "to ensure the horizontal location error is less than 15 m." To ensure an "overall"

horizontal location error of less than 15 m?
RC: We changed the sentences to "The density of the recorded sites controls the geometric accuracy of the fault data. the horizontal location error of every recorded site was less than 15 m."

AR: Line 185. "revealed." Revealed? Do you mean visualized?
RC: We apologize for this oversight. We have corrected it to visualized.

AR: Line 209. This is difficult to understand. You begin with the results from petroleum exploration, then describe your improved version, and end with details on the petroleum exploration results. I would move this sentence before the description of your method.
RC: Thank you for this suggestion. We deleted the sentence "Then, the exploration of the geologic section from the joint drilling was planned based on the above preliminary verification." To remove any confusion.

AR: Line 471. "are accessible online" Can you please add the link?
RC: The link is in the references: WMS (CAFD WMS, 2023) and WFS (CAFD WFS, 2023).

AR: Line 473. (http://data.earthquake.cn) This website is fully in Chinese. Can you please provide more information on which earthquake catalogs you have used? Ideally with links, because non-Chinese speaking people cannot find any of them.
RC: We added more information about it.
"The data are not freely downloadable. Their information and links are below.
FormalEq20090101T20210630:
https://data.earthquake.cn/datashare/report.shtml?PAGEID=datasourcelist&dt=40280d0453e414e40153e44861dd0003
CSNEq19700101T20081231:
https://data.earthquake.cn/datashare/report.shtml?PAGEID=datasourcelist&dt=40280d0453e414e40153e44861dd0002
HistoryEqT19691231:
https://data.earthquake.cn/datashare/report.shtml?PAGEID=datasourcelist&dt=8a85efd754e7d6910154e7d691810000"