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Supplement of

Tectonic Geomorphology and Paleoseismology of the Sharkhai fault: a new source of seismic hazard for Ulaanbaatar (Mongolia)

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Supplementary material

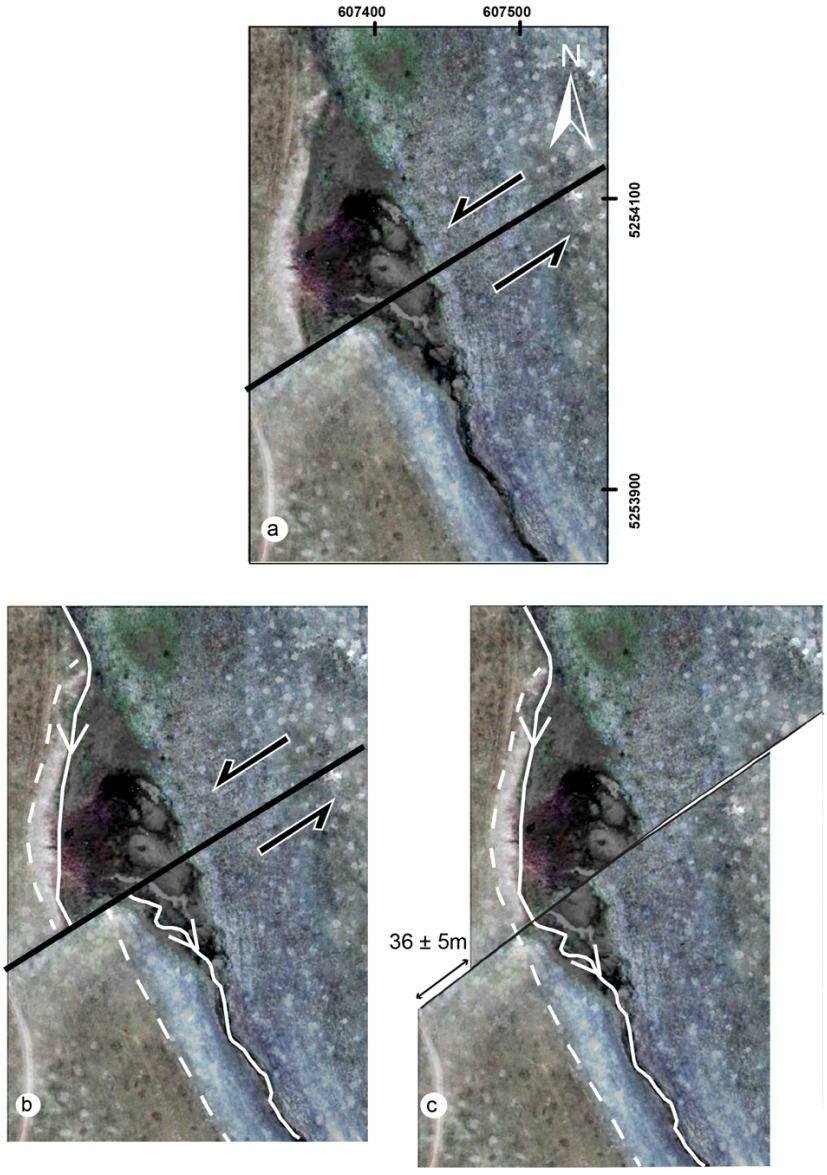

Figure S1: Offset reconstruction for drainage P3 (see Fig. 3 for location). a) Google earth image showing the various Quaternary deposits (changes in color) with the location of the surface rupture (black line). b) Same as a with drainage features (white line is the thalweg, dashed line is the edge of the terrace). c) Reconstruction of the terrace border to its initial geometry shows 36 ± 5 m of cumulative left-lateral offset. The uncertainty combines measurement errors (2 m) and data resolution uncertainty (1 m). (Images from: Google, Maxar Technologies)

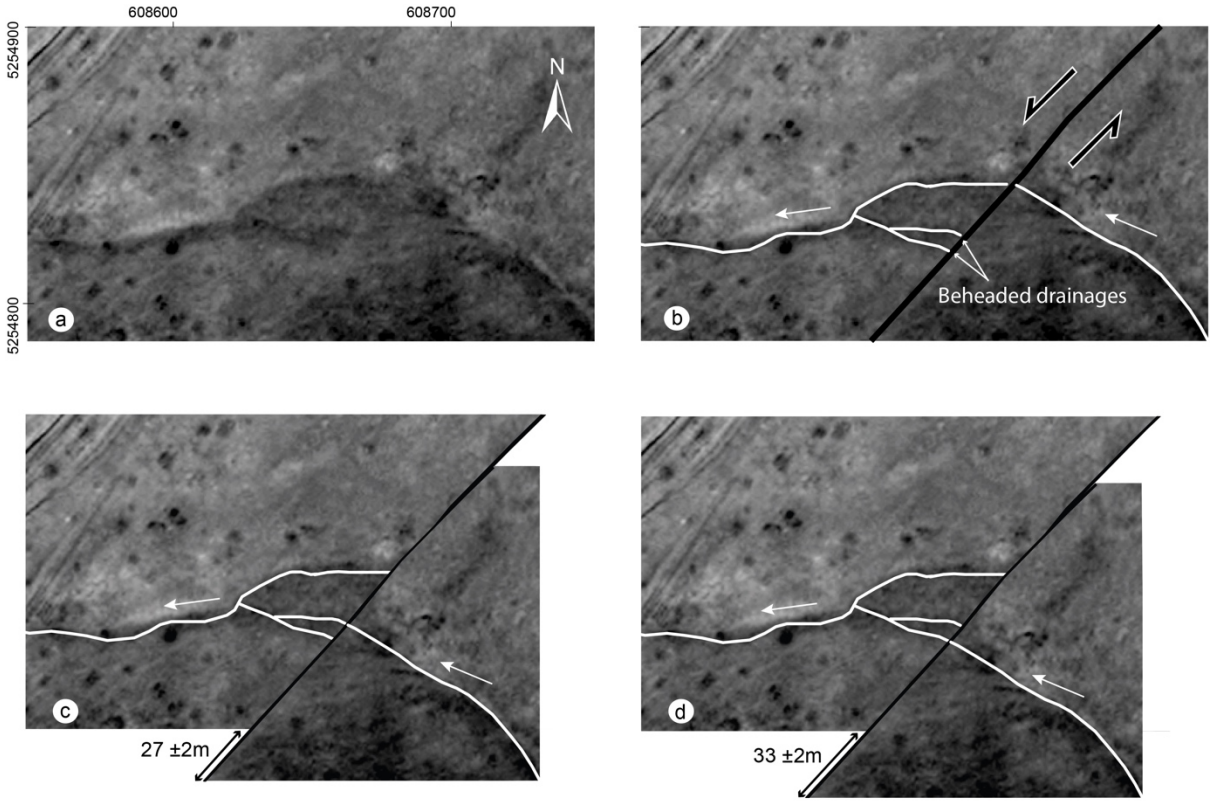

Figure S2: Offset reconstruction for drainage P4 (see Fig. 3 for location). a) Pleiades panchromatic image at present-day (PLEIADES © CNES, 2012, distribution Airbus DS). b) Same as a with the fault trace (black line) and the drainage network (white lines). Note the two small tributaries beheaded along the fault trace. c) Reconstruction of the minimum offset yields 27 ± 2 m. d) Reconstruction of the maximum offset yields 33 ± 2 m. The final left-lateral offset is estimated at 30 ± 5 m. The uncertainty combines measurement errors (2 m) and data resolution uncertainty (1 m).

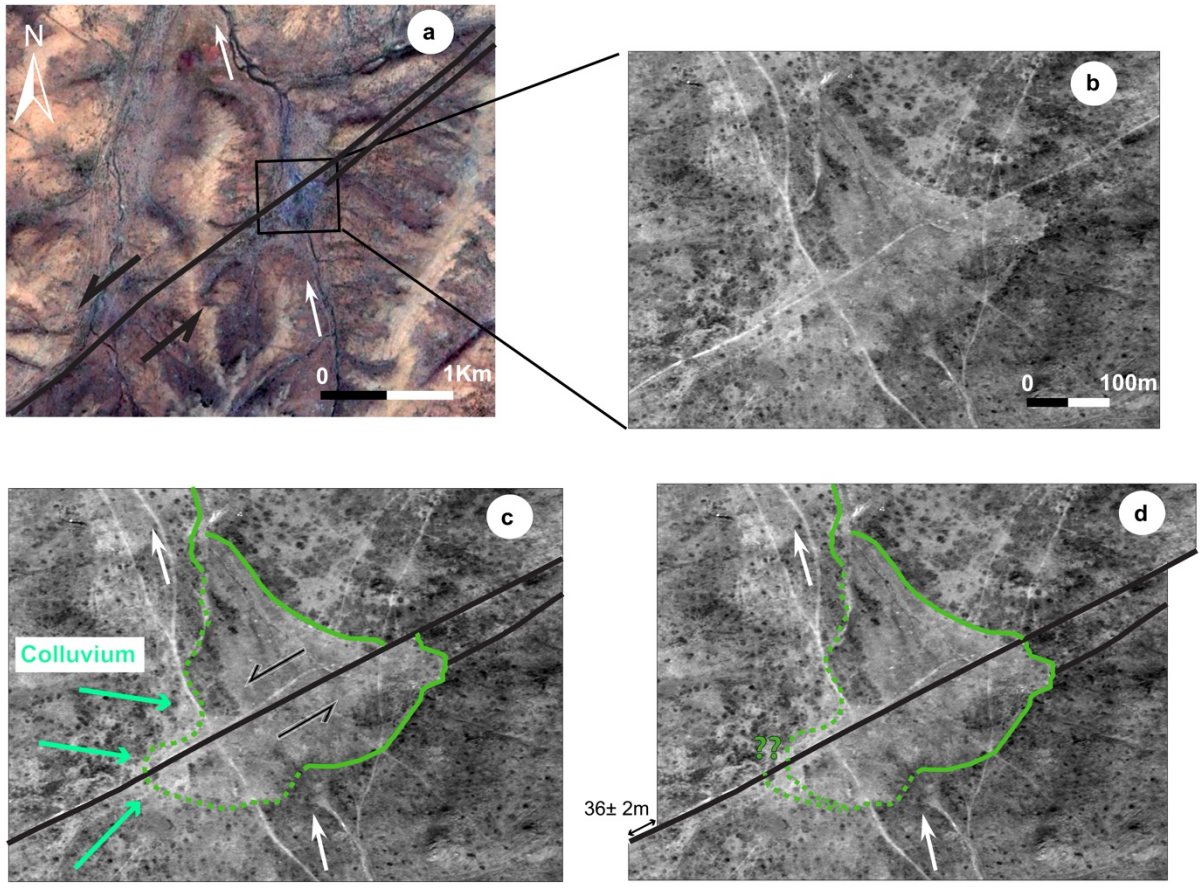

Figure S3: Offset reconstruction for drainage P6 (see Fig. 3 for location). a) Google earth image (Google, Maxar Technologies) with the fault trace (black lines), the flow direction of the main drainage (white arrows) and the location of close-up images b to d. b) Pleiades panchromatic image at present-day (PLEIADES © CNES, 2012, distribution Airbus DS). c) Same as b with fault trace (black lines) and limits of Quaternary deposits (green lines). The SW side of the Quaternary deposits has been covered by lateral colluvions from NW hill (light green arrows) hiding the previous limits of Quaternary deposits (dashed green line). d) Reconstruction of the NE limit of Quaternary deposits to its initial geometry yields a 36 ± 2 m cumulative left-lateral offset. The uncertainty combines measurement errors (2 m) and data resolution uncertainty (1 m).

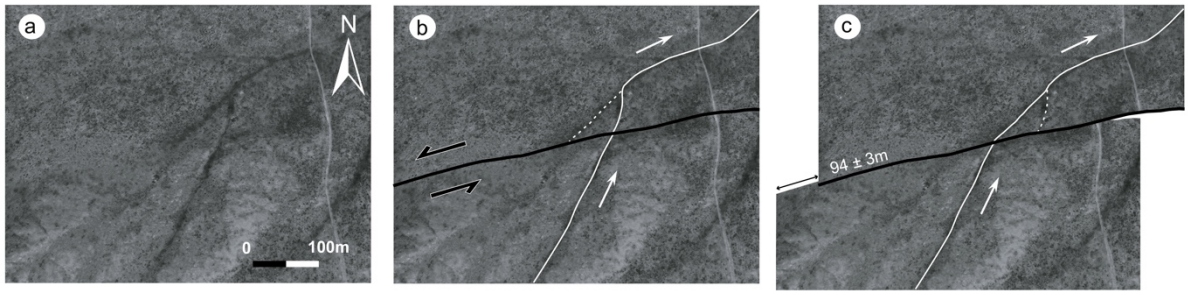

Figure S4: Offset reconstruction for drainage P7 (see Fig. 3 for location). a) Google Earth image showing the present-day situation (image from: Google, Maxar Technologies). b) Same as a with fault trace (black line) and drainage network (white line). Note the short-abandoned stream (dashed line) with a marked change in incision at the passage of the fault. c) Reconstruction of the drainage to its initial situation yields a cumulative offset of 94 ± 3 m. The uncertainty combines measurement errors (2 m) and data resolution uncertainty (1 m).

The acquisition dates of satellite images.

Figure number	Fig. 7	Fig. S1	Fig. S2	Fig. 9	Fig. S3	Fig. 6	Fig. S4
Image	Pleiades Panchromatic	Google Earth image	Pleiades Panchromatic	Google Earth image	Pleiades Panchromatic	Pleiades MS	Google Earth image
Date of acquisition	October 2012	July 2017	October 2012	June 2020	October 2012	October 2012	June 2014