



Correction: Multidisciplinary analyses of the rupture characteristic of the June 14, 2020, M_w 5.9 Kaynarpinar (Karlıova, Bingöl) earthquake reveal N70E-striking active faults along the Yedisu Seismic Gap of the North Anatolian Fault Zone

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Unfortunately, some of the texts were missed in the online published article. The missing texts are given below. The original article has been corrected.

Zabcı et al. (2015) discussed if there is a slip rate decrease from west of Erzincan to the east, towards the Karlıova Triple Junction (after Tatar et al. 2012). This hypothesis was disproved by InSAR based 20–26 mm yr⁻¹ constant slip rates (Walters et al. 2011, 2014; Çakır et al. 2014; Cavalie and Jönsson 2014; Zabcı et al. 2015).

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Several studies (Sançar and Akyüz 2014; Zabcı et al. 2015, 2017) explained that this difference in slip rate is a result of complex faulting near the Karlıova Triple Junction (Şengör 1979; Şengör et al. 1985; Şaroğlu and Yılmaz 1991; Sançar et al. 2011), which we agree to. It was suggested that the total strain is not carried by a single fault but distributed between the main displacement zone and the secondary structures along the Yedisu Seismic Gap (Sançar and Akyüz 2014; Zabcı et al. 2015, 2017). The earthquake recurrence interval of 2000 years for the easternmost part of the North Anatolian Fault was documented from the Karlıova Triple Junction (Sançar and Akyüz 2014; the Kargapazarı Fault). This value is not in accordance with the general average recurrence interval of 200 to 250 years for the North Anatolian Fault Zone (e.g., Okumura et al. 1994).

Sançar and Akyüz (2014) showed that there had not been an earthquake in the Kargapazarı (or their Ilıpınar) Fault in the last 7 ka. Accordingly, these authors suggested that the accumulated strain near Karlıova Triple Junction partitions between several fault segments. Here, we suggest that some of the Holocene dextral slip may have been partitioned by the Kaynarpinar–Yuvaklı Fault Zone, which is a significant component of the North Anatolian Fault Zone (Figs. 11, 12, 13). We do not know the amount of the dextral slip partitioned by the Kaynarpinar–Yuvaklı Fault Zone in detailed Quaternary fault mapping and palaeoseismological trench studies are missing along this newly discovered fault zone.

Conclusion

The June 14, 2020, M_w 5.9 Kaynarpinar, Karlıova earthquake occurred on a previously unmapped N70E-striking active fault zone near Karlıova Triple Junction. The Kaynarpinar

earthquake created a ~500-m-long rupture zone and dextral co-seismic slip of $\sim 16 \pm 1$ cm along a previously existing pressure ridge. The $\sim 16 \pm 1$ cm dextral slip measured in the field agrees with the 13 to 15 cm highest horizontal displacement magnitudes measured by InSAR. In this study, we relocated a cluster of 210 events, including the mainshock and its aftershocks, within ~8 months. This relocation analysis moved the epicenter of the main event and the aftershocks towards the region of the rupture area, which is evident from fieldwork and InSAR analyses. This finding suggests that regardless of the size of the event, it is crucial to carry out relocation studies around the Karlıova Triple Junction due to its complex fault structure. We name the N70E-striking dextral faults along which the 2020, Kaynarçınar earthquake occurred as the Kaynarçınar–Yuvaklı Fault Zone. This fault zone is a part of the NE-striking dextral fault family of the Turkish–Iranian High Plateau and the North Anatolian Fault Zone. The Kaynarçınar–Yuvaklı Fault Zone is in contact with the NW-striking dextral faults

of the North Anatolian Fault Zone near the Karlıova Triple Junction. The previous studies suggest an earthquake recurrence interval of 200 to 250 years and an average slip rate of $20\text{--}26$ mm yr⁻¹ along most of the length of the North Anatolian Fault Zone. However, in the easternmost part of the Yedisu Seismic Gap, between the Kaynarçınar–Yuvaklı Fault Zone and the Karlıova Triple Junction, the earthquake recurrence interval of 2000 years and a slip rate between ~ 13 and 11.8 ± 0.3 mm yr⁻¹ were reported. This discrepancy is a result of the under-recognition of the faults of the Kaynarçınar–Yuvaklı Fault Zone. The faults of the Kaynarçınar–Yuvaklı Fault Zone must have carried some, if not most, of the dextral sense-of-slip in the easternmost part of the North Anatolian Fault Zone, which needs to be tested in detail by Quaternary mapping and palaeoseismological trench studies in the future.