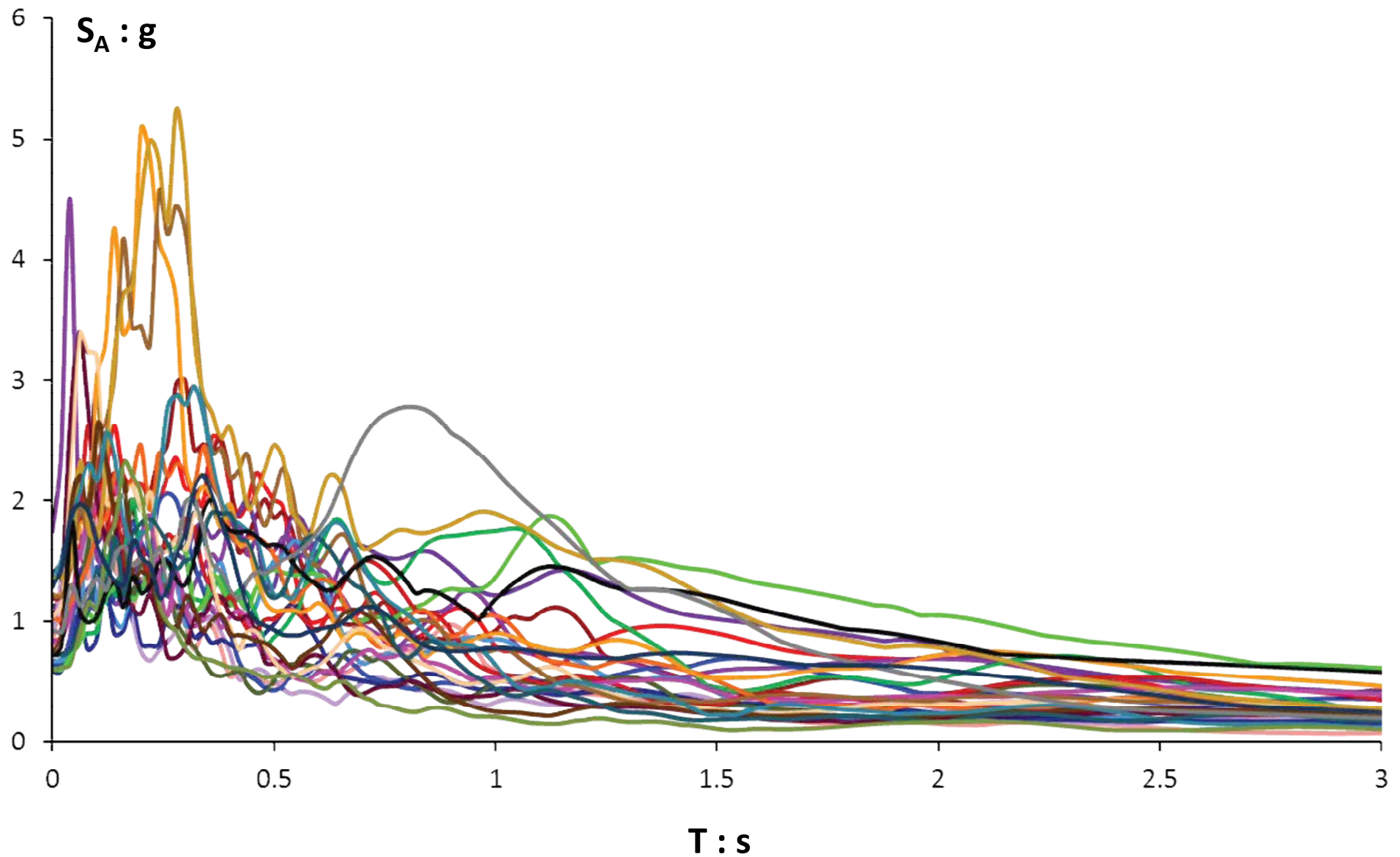


**All the elastic response spectra
of the 10 stations of earthquake $M_w 7.8$ (presented herein)**



PRELIMINARY REPORT

M 7.8 and M 7.5 Earthquakes in Turkey and Syria

PART D: Emergence of the Fault Rupture on the Ground Surface and SOIL LIQUEFACTION

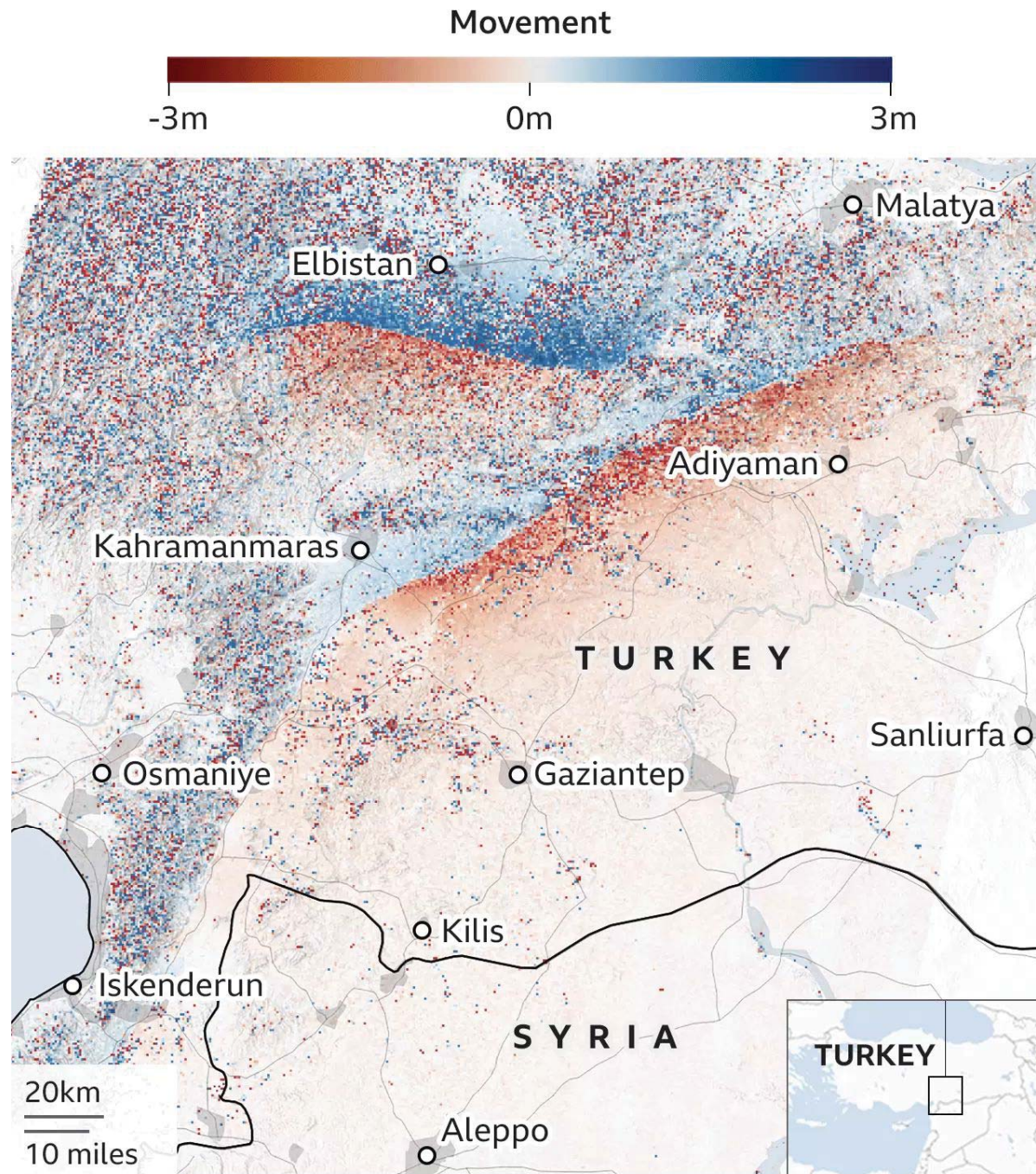
Evangelia GARINI and George GAZETAS

13 February 2023



**School of Civil Engineering,
National Technical University of Athens**

EU satellite precisely maps earthquake faults



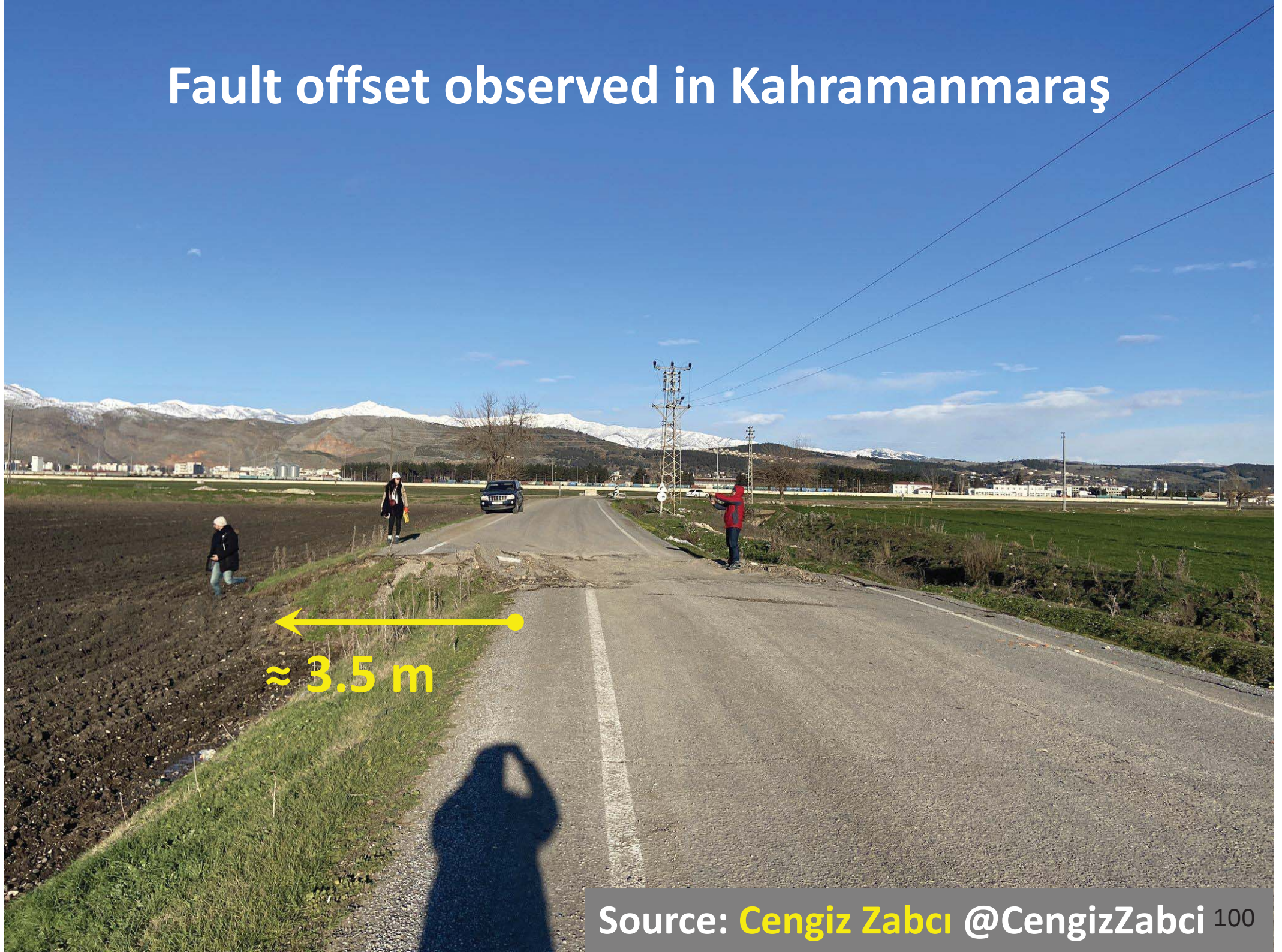
Ground movement measured closer to or further away from passing satellite

Source: Copernicus data, Esa, Comet 2023

Anadolu Agency



Fault offset observed in Kahramanmaraş



Picture of a bent railway due to Fault rupture

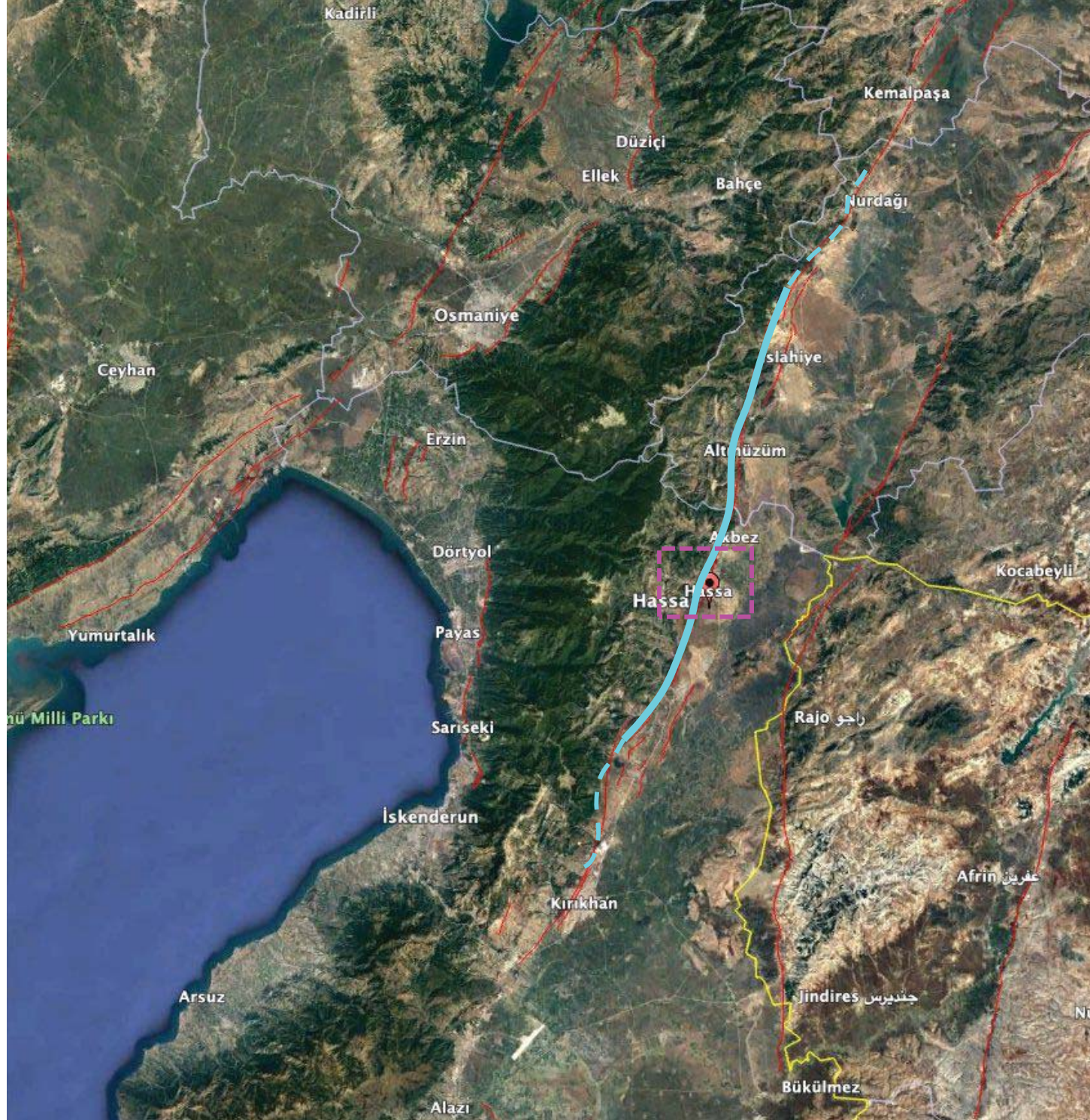


The strike slip fault as emerges at surface





New aerial images show a tens of km long surface rupture associated with the M7.8 Turkey earthquake near Tevekkeli, Kahramanmaraş. Credit: @trthaber



Source: <https://twitter.com/ziyadin/status/1623288689894871046>

Surface rupture at Hassa, southernmost
extent of the rupture observed by
OzdemirAlpay @geodesist_a



Surface rupture at Hassa Town



Source: Ozdemir Alpay

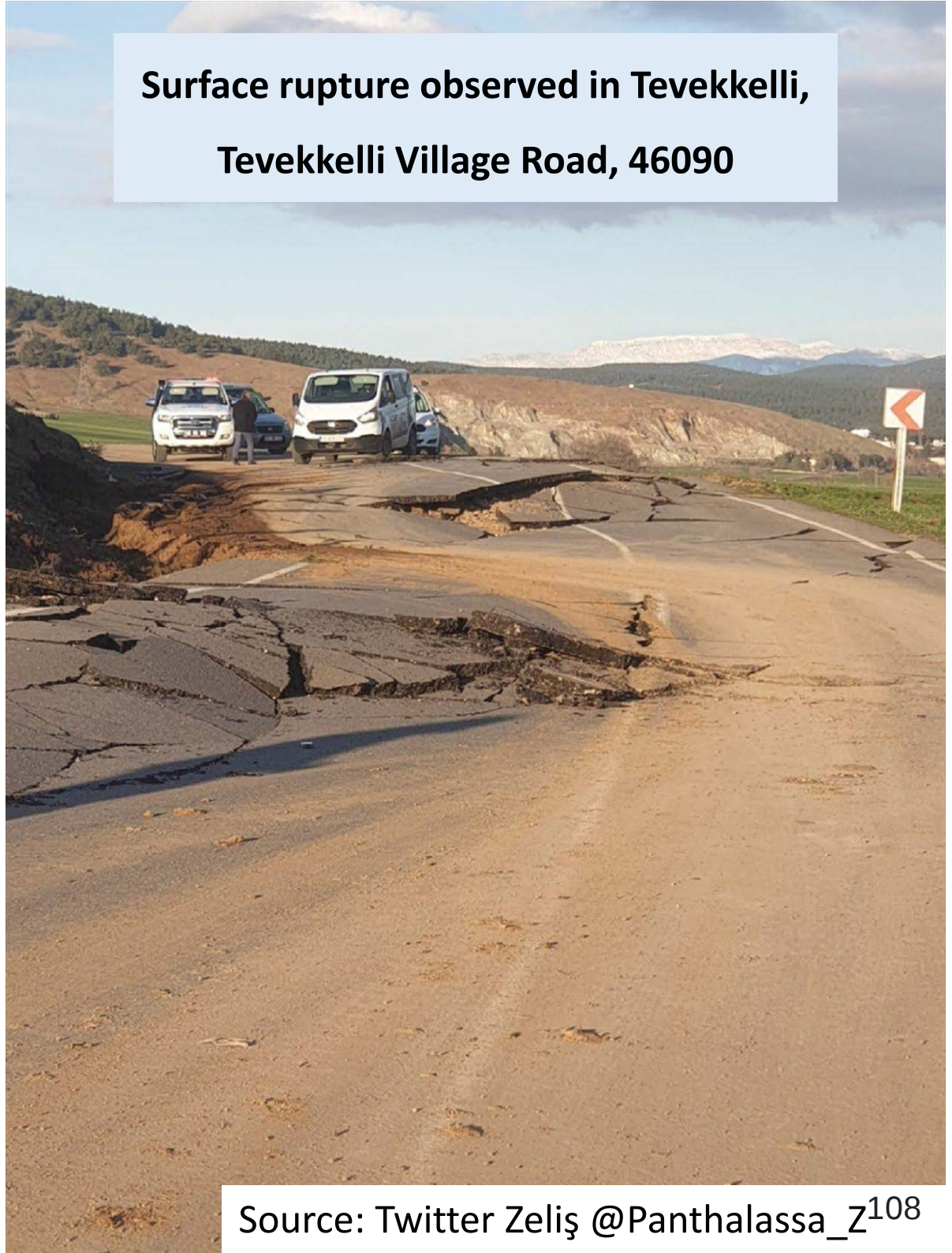


Source: https://twitter.com/Panthalassa_Z/status/1623040975848280107

Q ılkadiroğlu/Kahramanmaraş, Türkiye Search

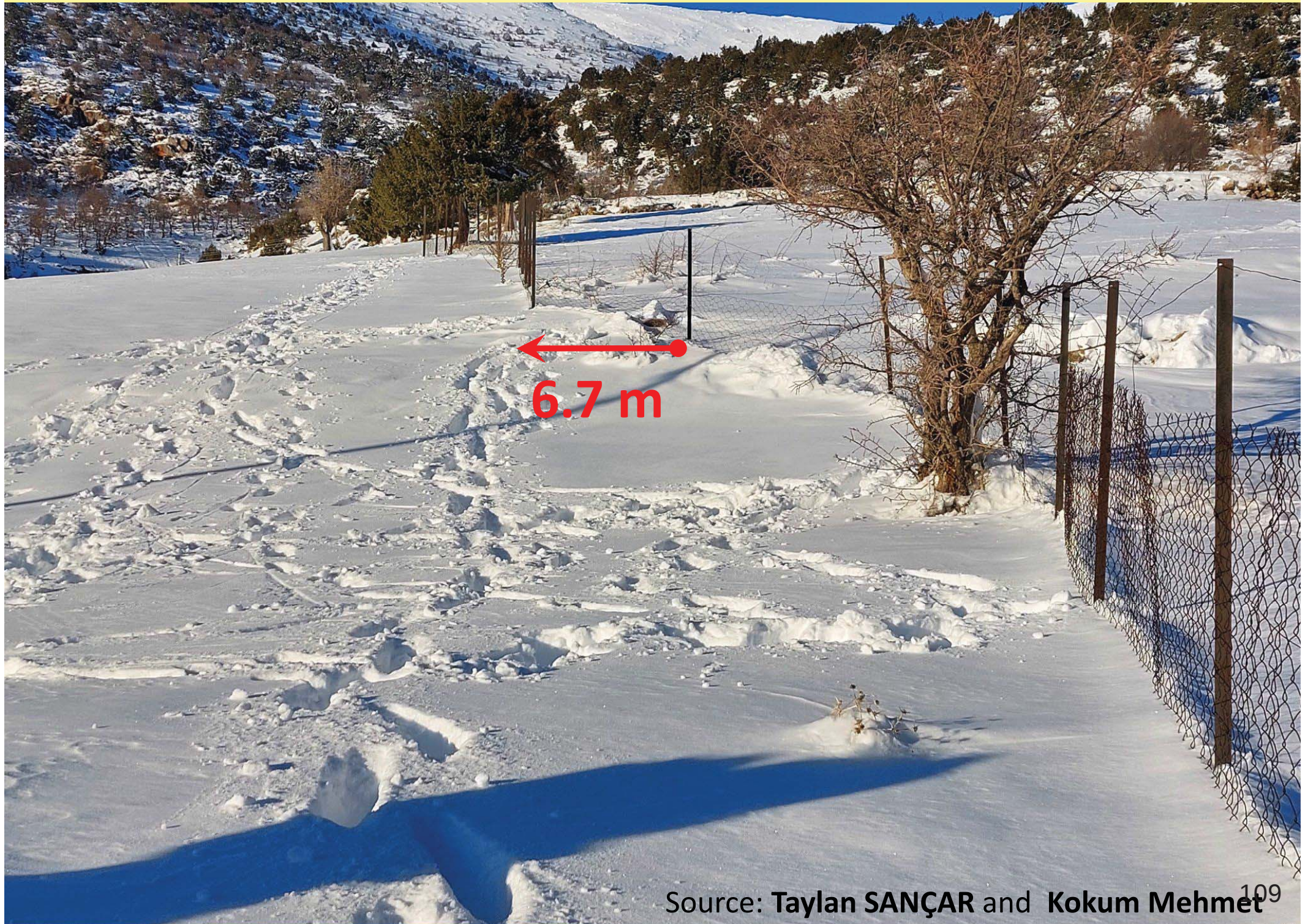


Surface rupture observed in Tevekkeli, Tevekkeli Village Road, 46090



Source: Twitter Zeliş @Panthalassa_z¹⁰⁸

6.7 m fence offset along the Sürğü-Çardak Fault





Offset at SE of Şekeroba **3.5±0.2 m**

@ActiveTectonic

@CengizZabci

@HNK390978941

Gursel Sunal, Erdem Kirkan, Nurettin
Yakupoglu, Asen Sabuncu

NE-SW orientated fracture systems formed within the deformation zone of the Malatya



Source: Taylan SANÇAR



**The fault rupture at the surface
in the east of Türkoglu.**

**Source: Gürsel Sunal, Erdem Kırkan,
Nurettin Yakupoğlu, Asen Sabuncu**



Source: **Ömer Gür**

Soil Liquefaction

Liquefaction at the edge of Hatay city [Location: Lat:36.2459410,Long: 36.2045409]]



Source: **Ozdemir Alpay**¹⁵





Source: Ozdemir Alpay

Soil liquefaction in northern Syria after the M7.8 earthquake



Source: <http://yourweather.co.uk>.

Soil liquefaction in northern Syria after the M7.8 earthquake



Source: <http://yourweather.co.uk>.

Soil liquefaction in northern Syria after the M7.8 earthquake

