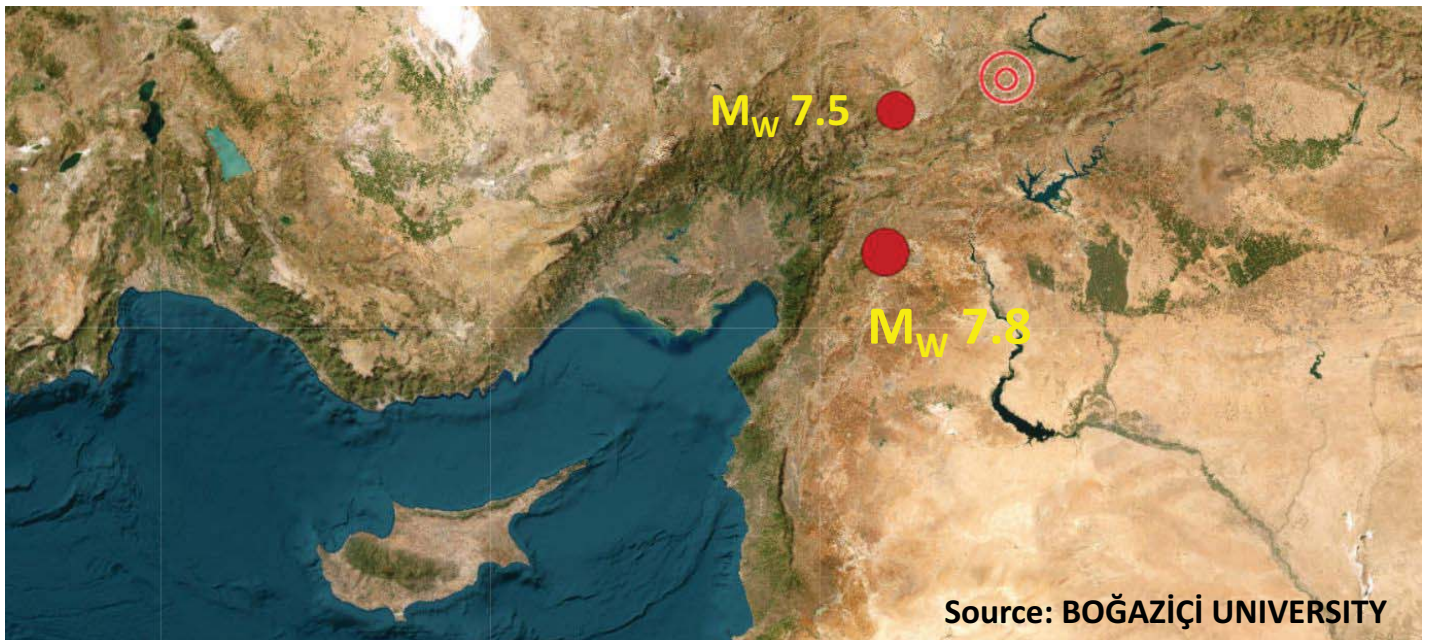


The 2 earthquakes of February 6th 2023 in Turkey & Syria



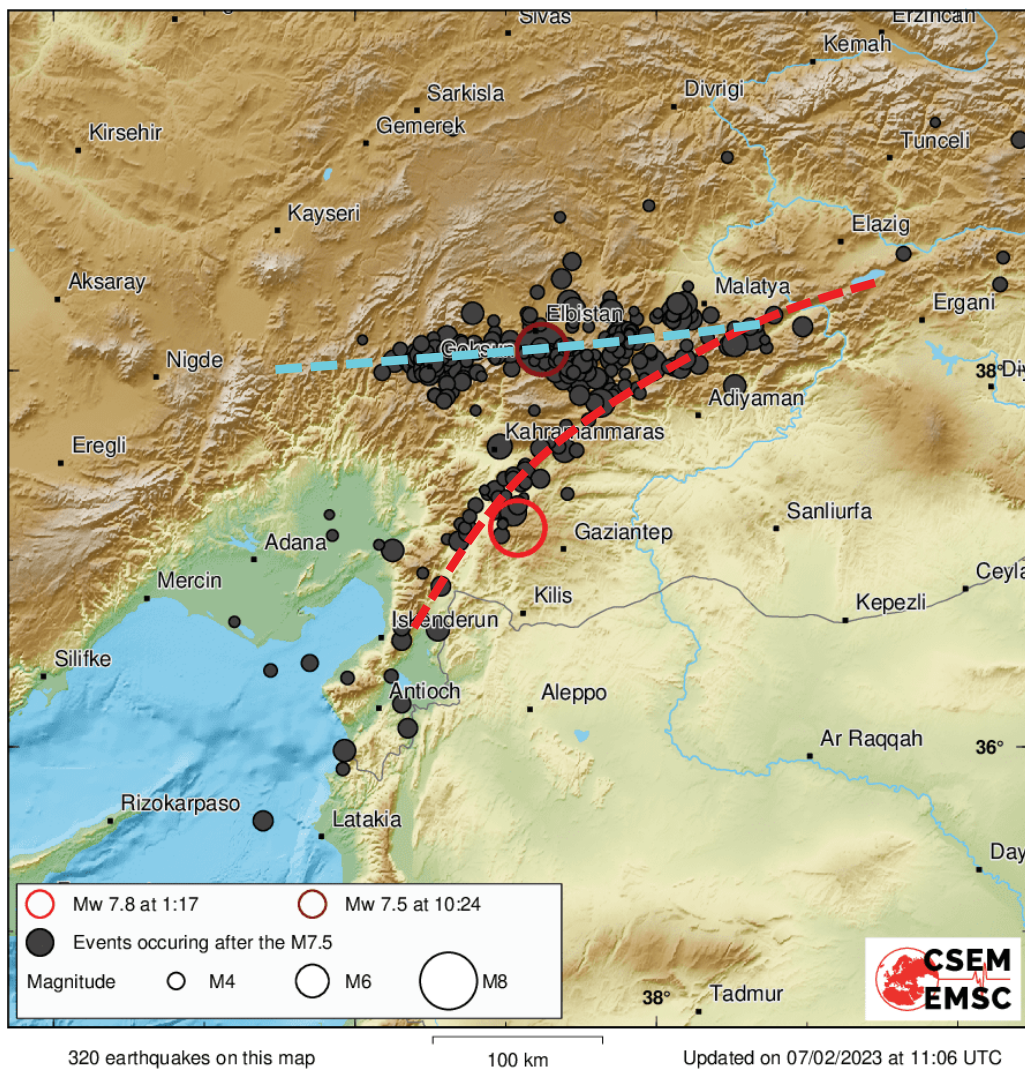
Second Preliminary Report (8-2-23) Emergence of Fault Rupture, Accelerograms

by Evangelia GARINI and George GAZETAS
NTUA, Greece

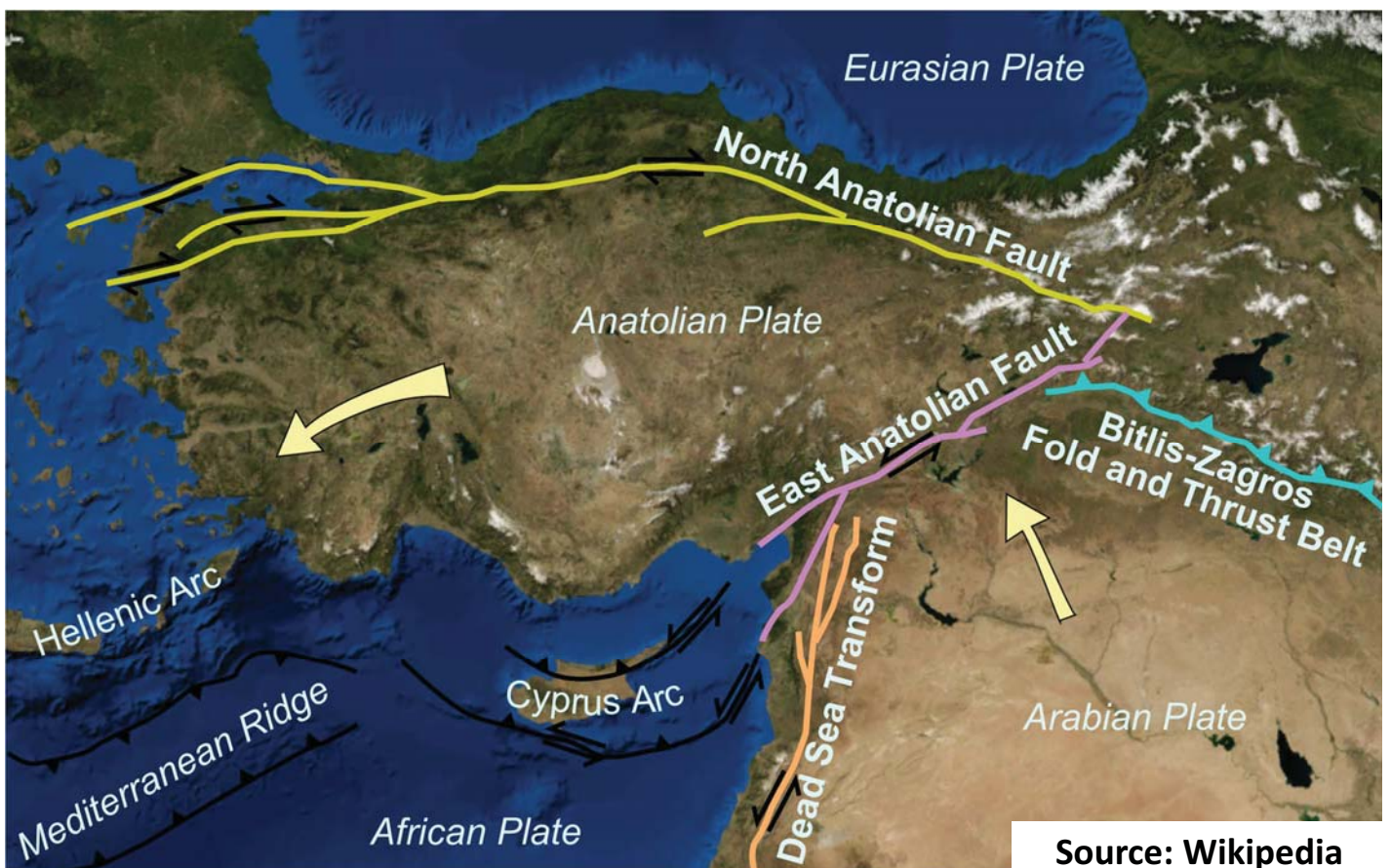


➔ Magnitude **Mw 7.8**
➔ Region **CENTRAL TURKEY**
➔ Date time **2023-02-06 01:17:36.1 UTC**
➔ Location **37.17 N ; 37.08 E**
➔ Depth **20 km**

➔ Magnitude **Mw 7.5**
➔ Region **CENTRAL TURKEY**
➔ Date time **2023-02-06 10:24:49.6 UTC**
➔ Location **38.11 N ; 37.24 E**
➔ Depth **10 km**

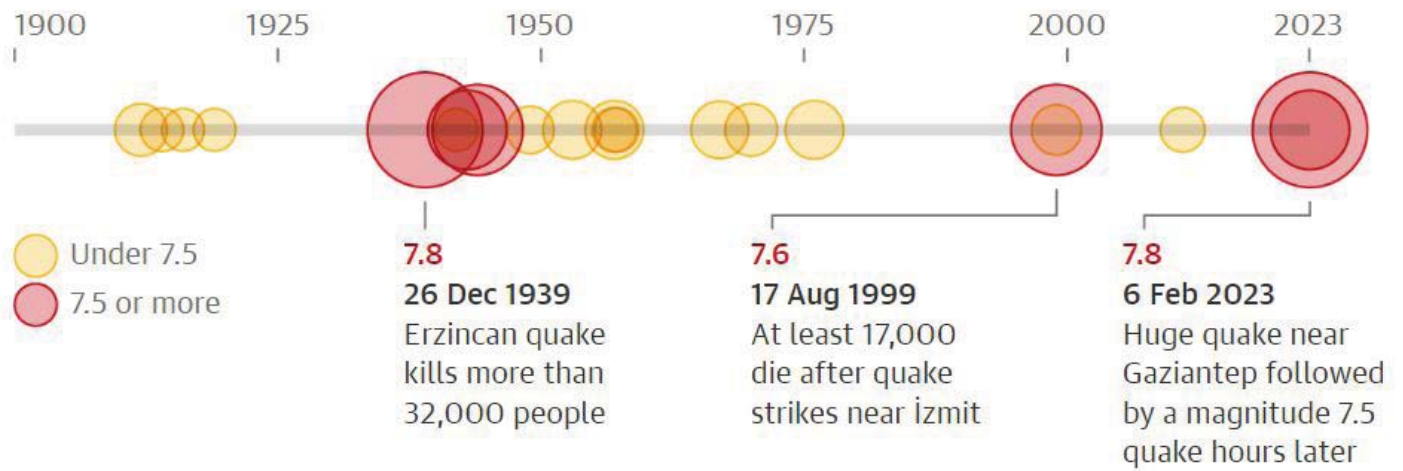


Map showing main tectonic structures around the Anatolian Plate.
The arrows show displacement vectors of the Anatolian and Arabian Plates
relative to the Eurasian Plate



Source: Wikipedia

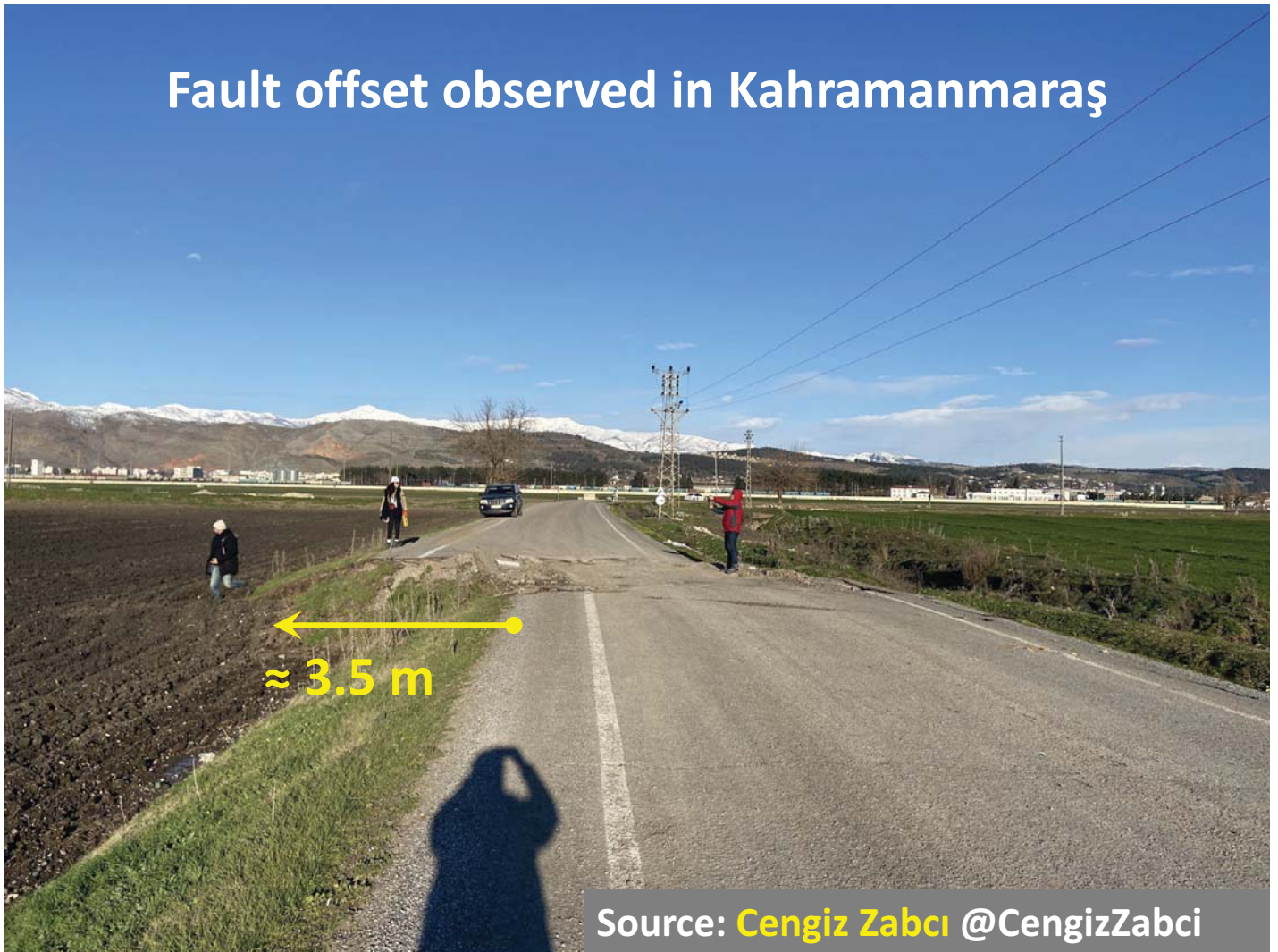
Turkey has been hit by 21 earthquakes of magnitude 7 or higher since 1900



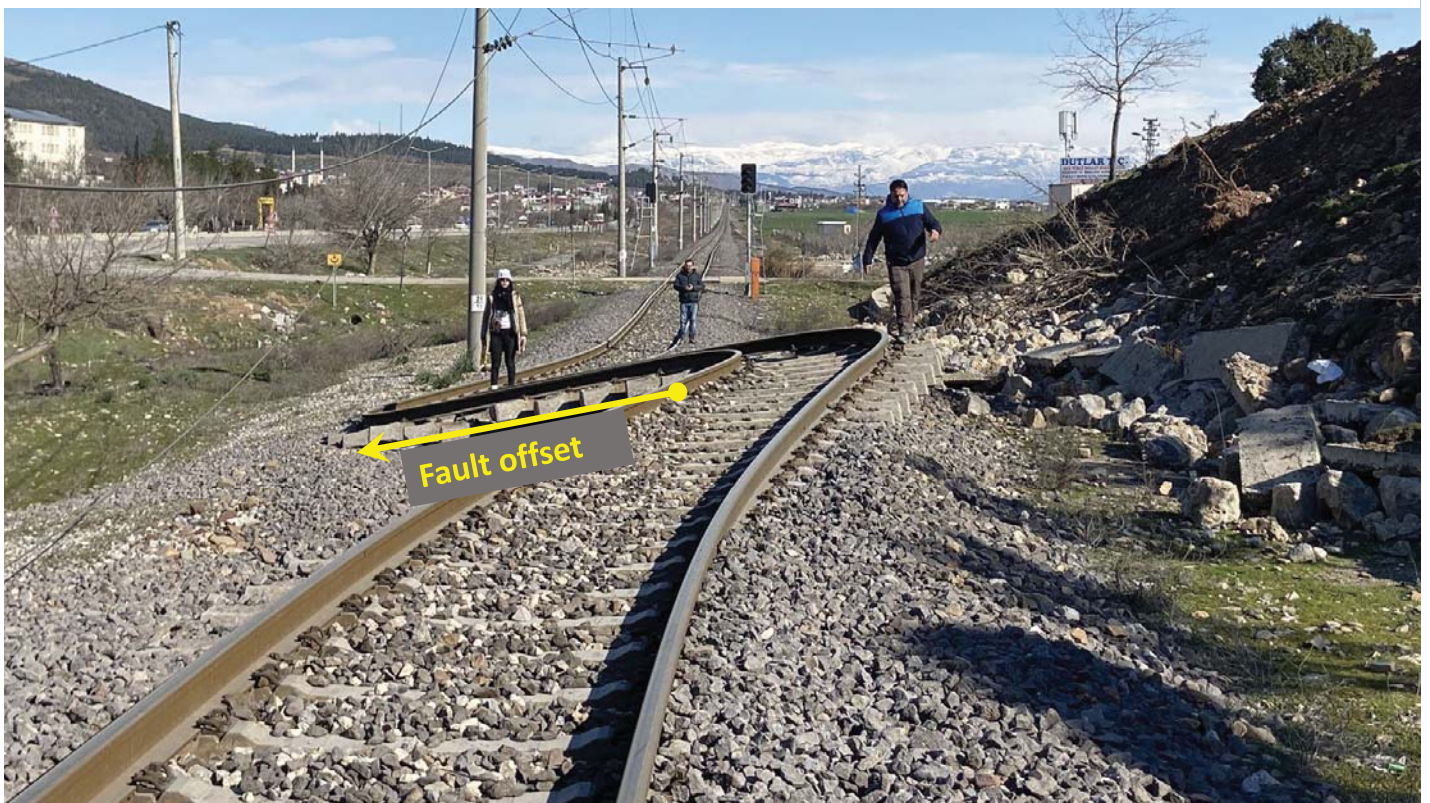
Source: The Guardian

**Emergence of the Fault Rupture
on the Ground Surface**

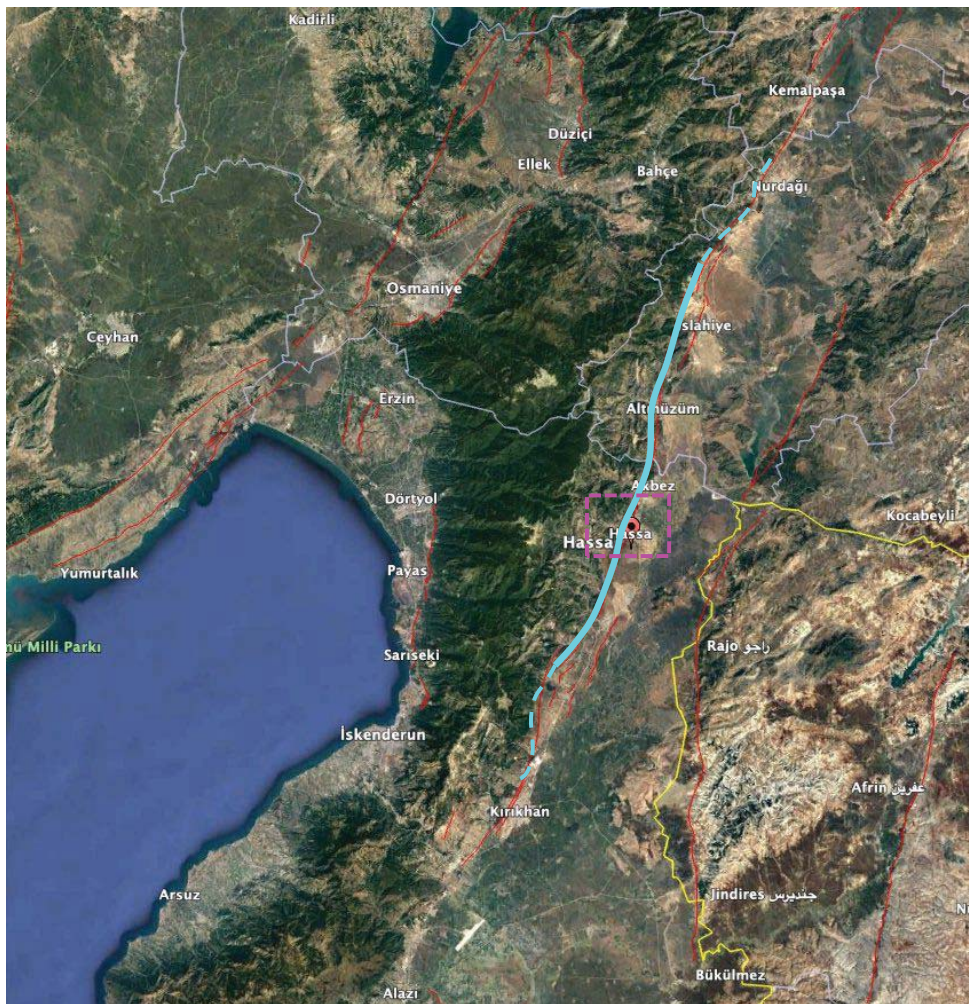
Fault offset observed in Kahramanmaraş



Picture of a bent railway due to Fault rupture



Source: **Cengiz Zabci** @CengizZabci



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



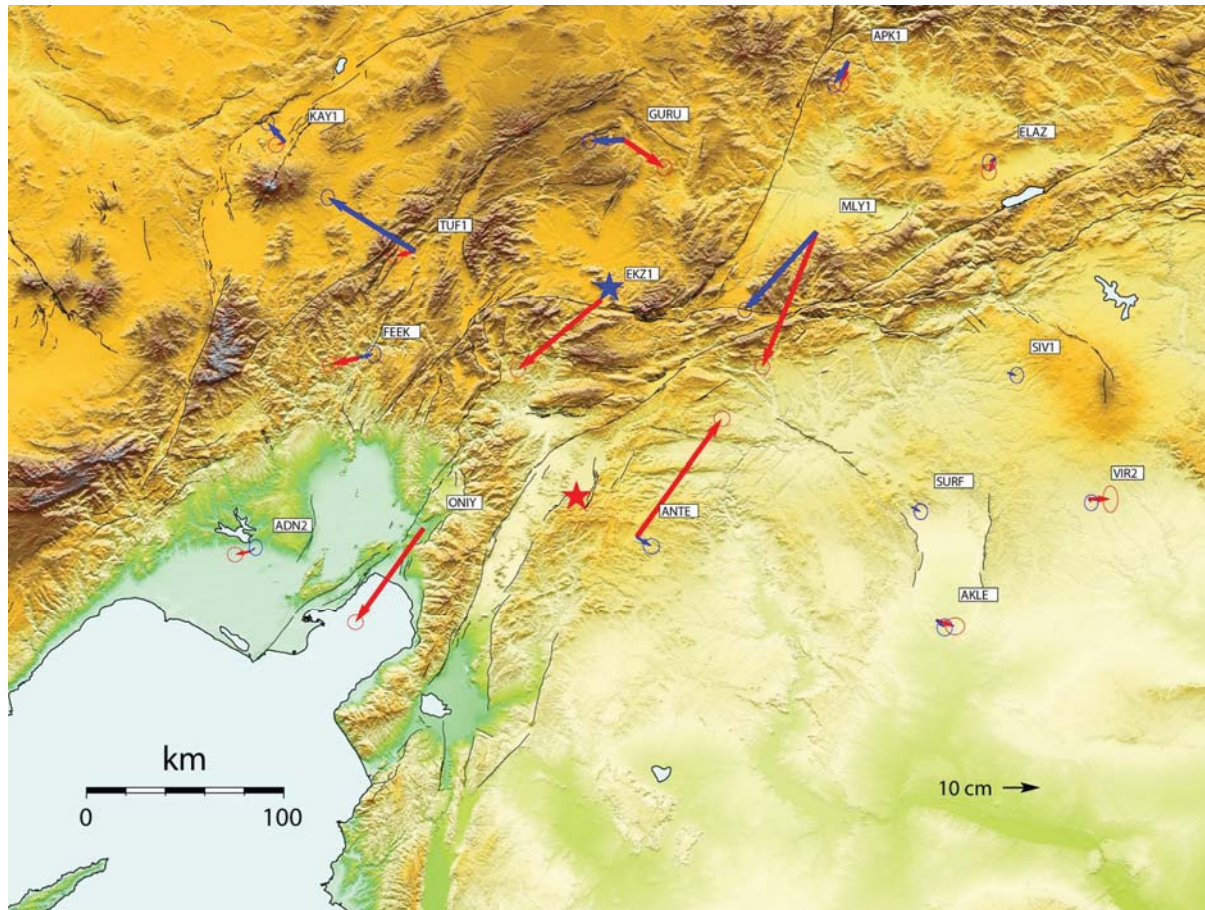


Source: https://twitter.com/Panthalassa_Z/status/1623040975848280107



Surface rupture observed in Tevekkelli,
Tevekkelli Village Road, 46090
Dulkadiroglu/Kahramanmaras, Turkey
Source: Twitter Zeliş @Panthalassa_Z

Coseismic displacements from GPS PPP results Mw7.8 (red star and arrows) and Mw7.6 (blue star and arrows) earthquakes



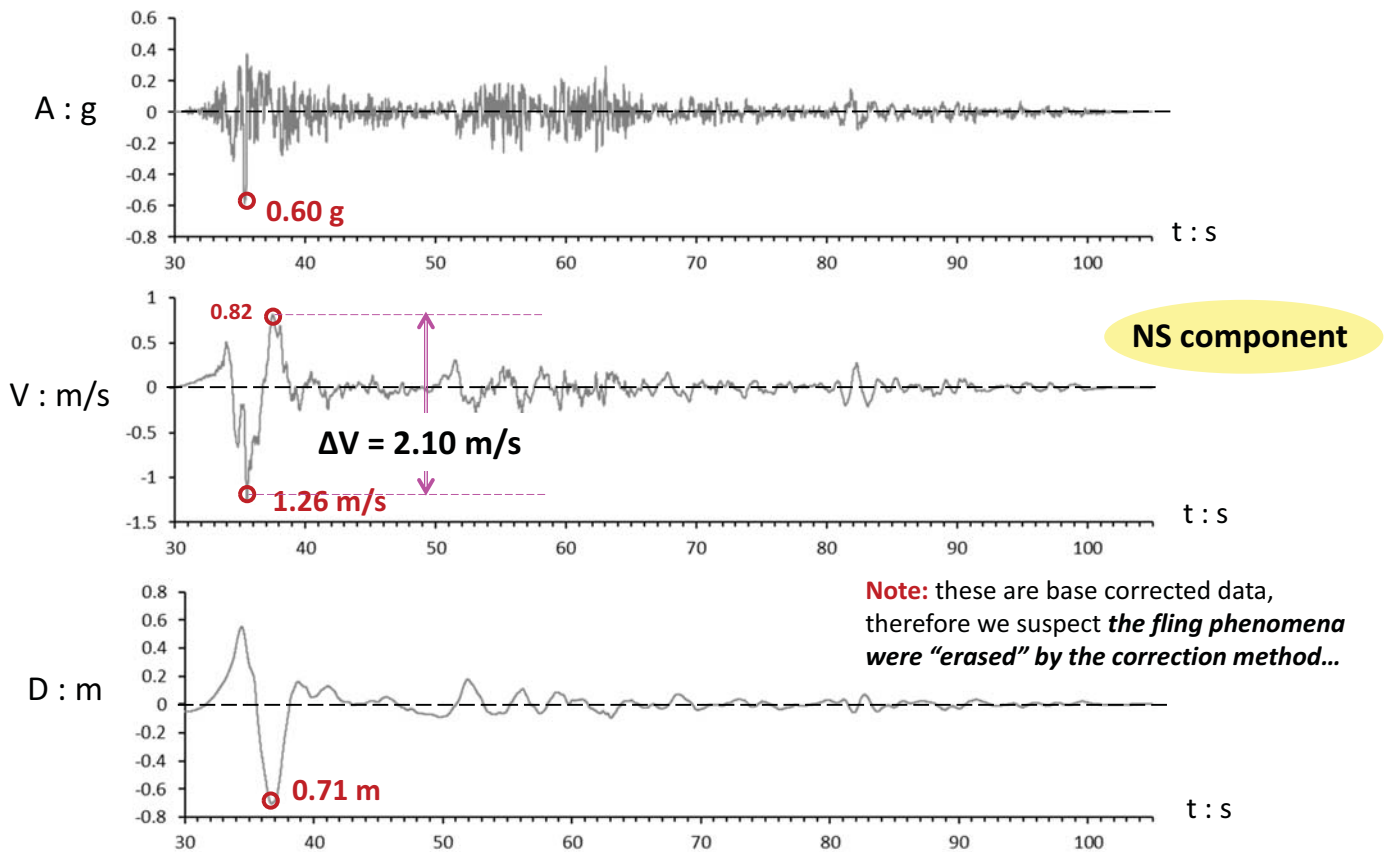
Strong Motions Records

Disclaimer: The data utilised are taken from the AFAD website, as they are published on 7 February 2023. Mistakes on baseline corrections or other issues are noticed by the Authors but are not solved here.

1st Mainshock M_w7.8

Station 4615: at Kahramanmaras Pazarcik

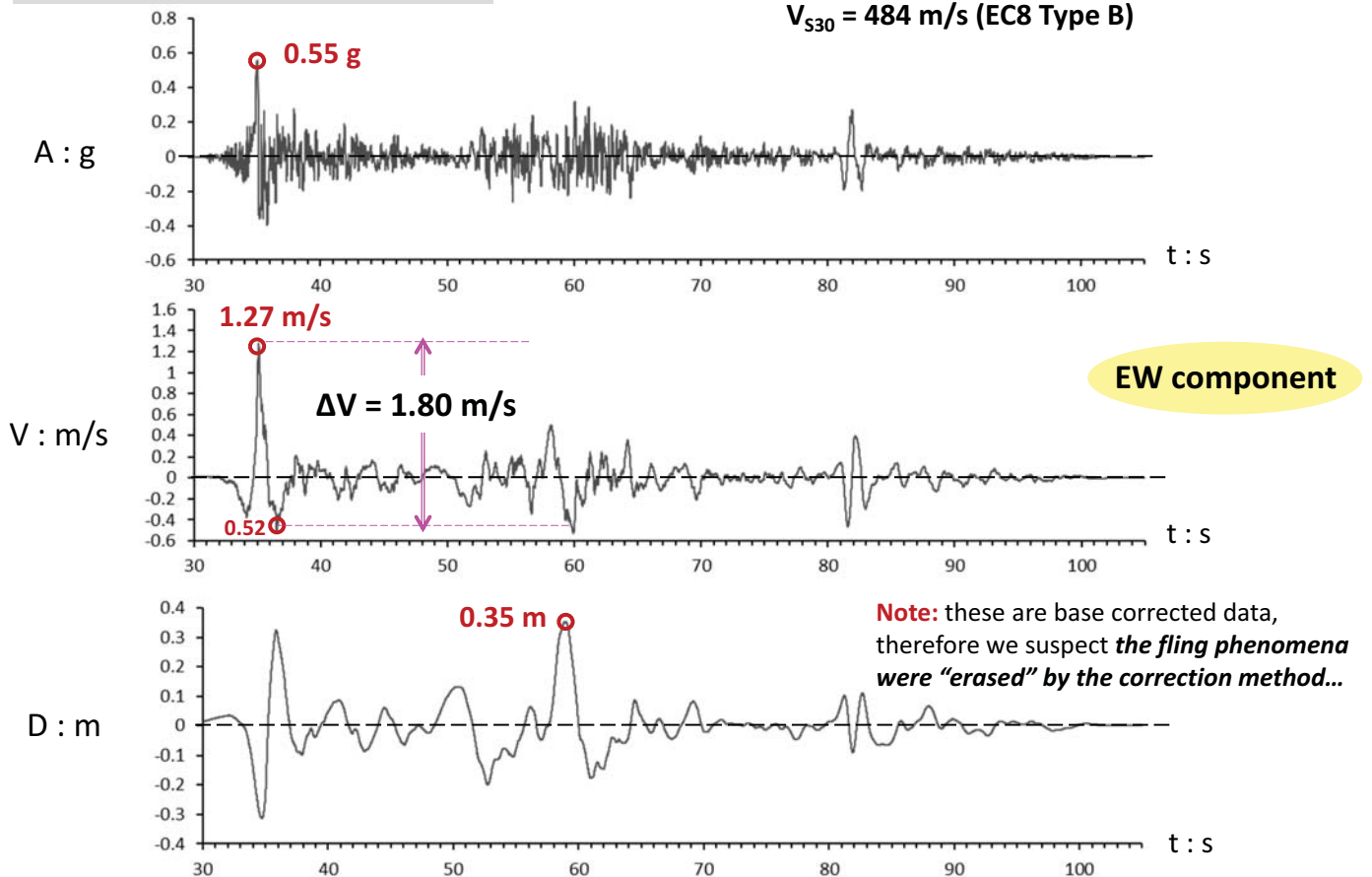
V_{S30} = 484 m/s (EC8 Type B)



1st Mainshock M_w7.8

Station 4615: at Kahramanmaras Pazarcik

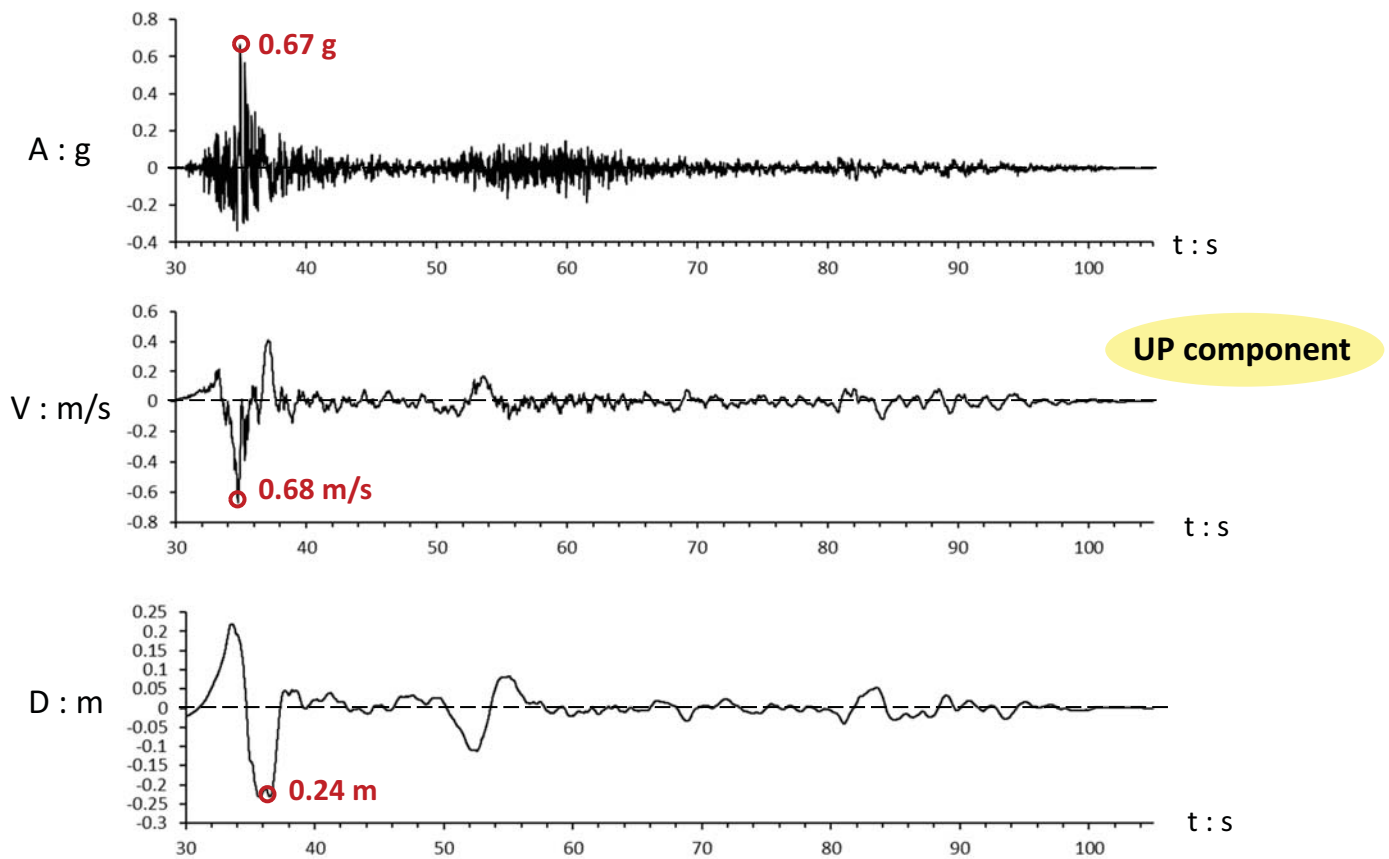
V_{S30} = 484 m/s (EC8 Type B)



1st Mainshock M_w7.8

Station 4615: at [Kahramanmaras Pazarck](#)

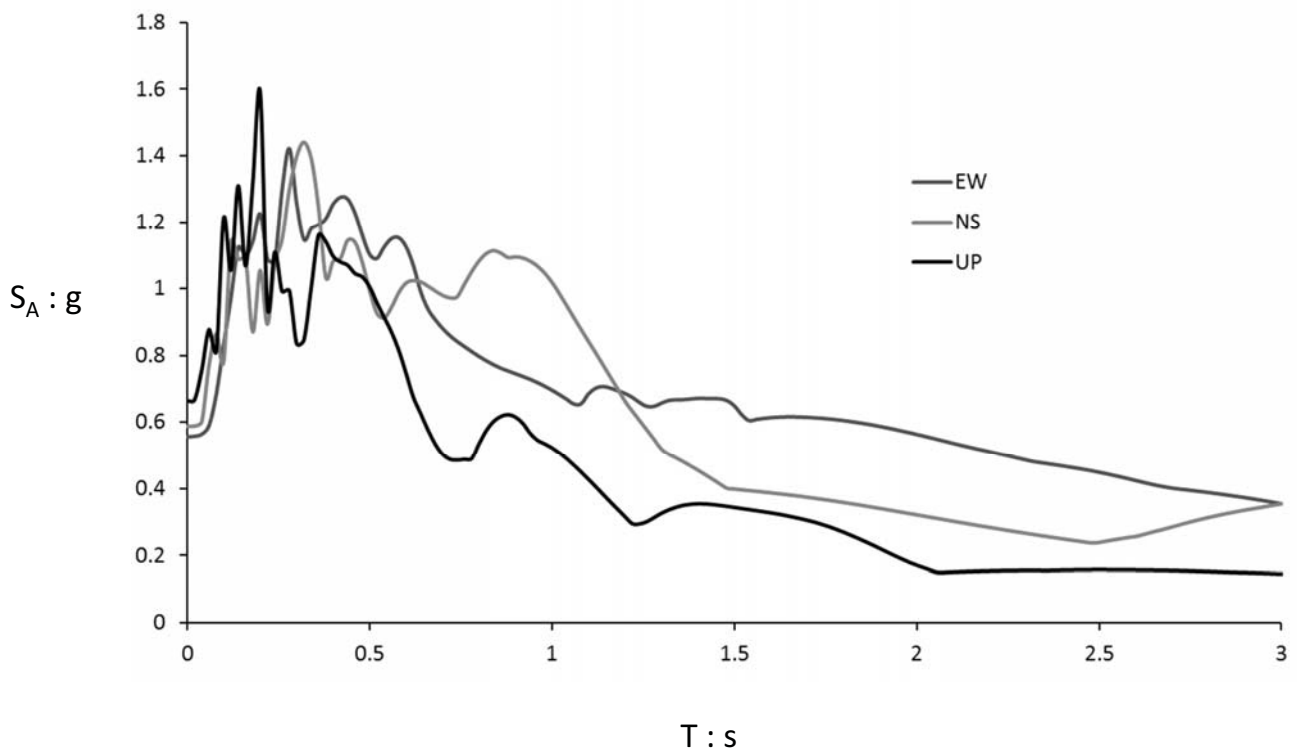
V_{S30} = 484 m/s (EC8 Type B)



1st Mainshock M_w7.8

Station 4615: at [Kahramanmaras Pazarck](#)

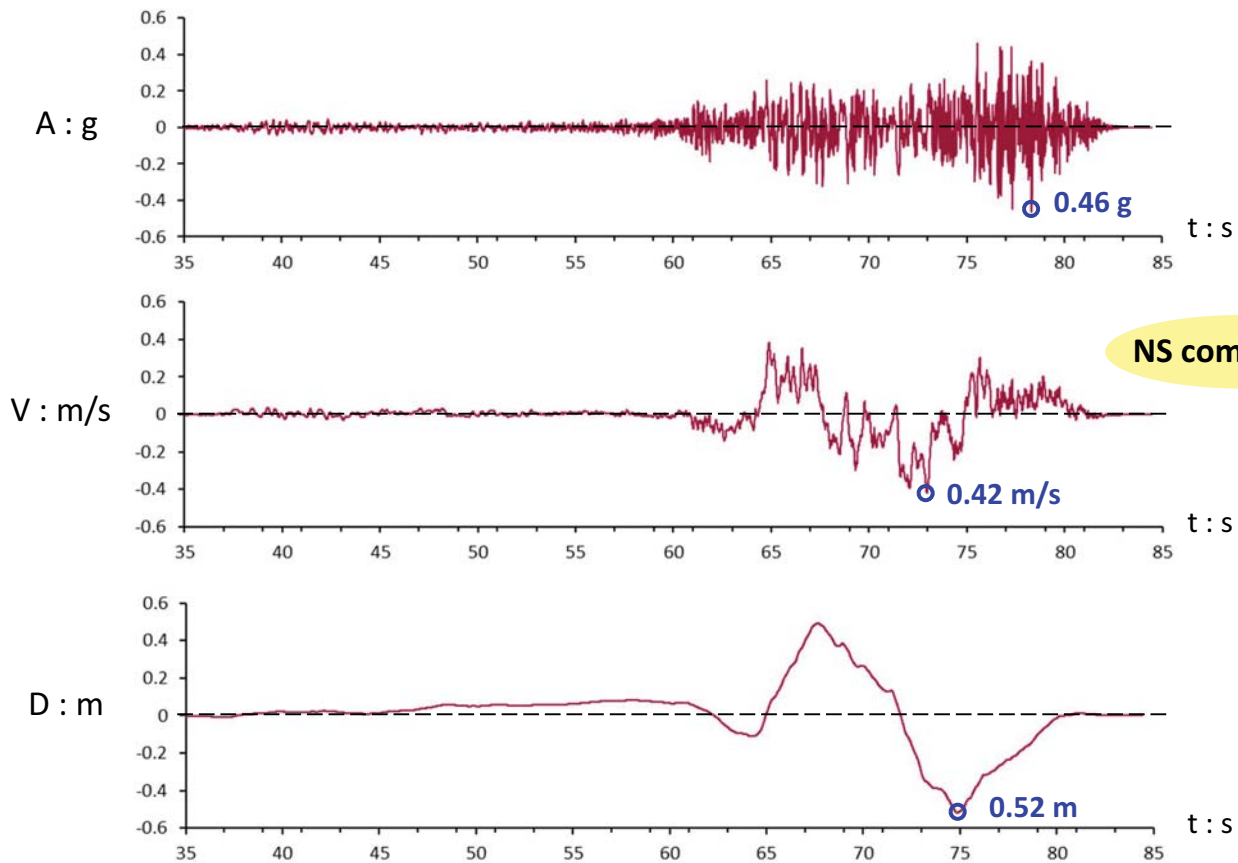
V_{S30} = 484 m/s (EC8 Type B)



1st Mainshock M_w 7.8

Station 3146: at Kahramanmaras Pazarcik

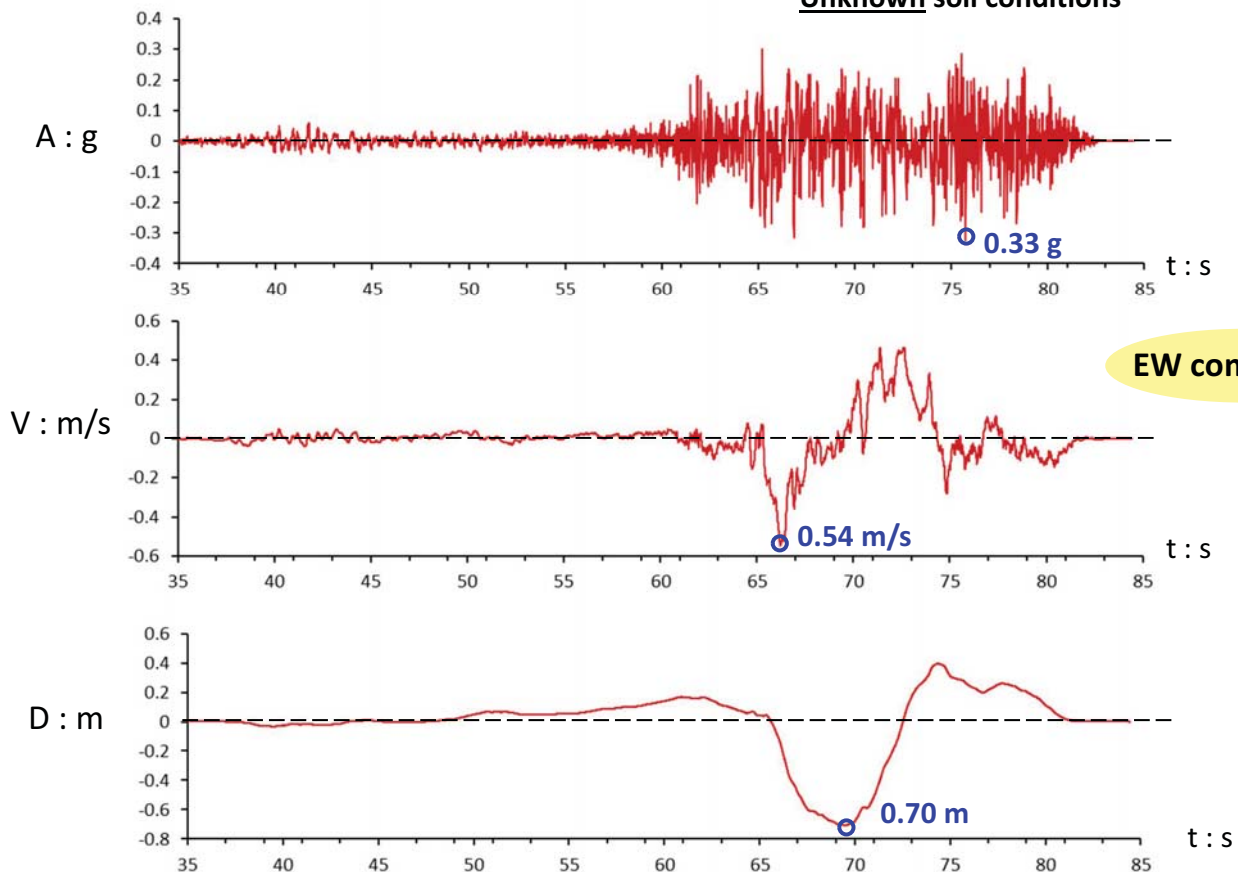
Unknown soil conditions



1st Mainshock M_w 7.8

Station 3146: at Kahramanmaras Pazarcik

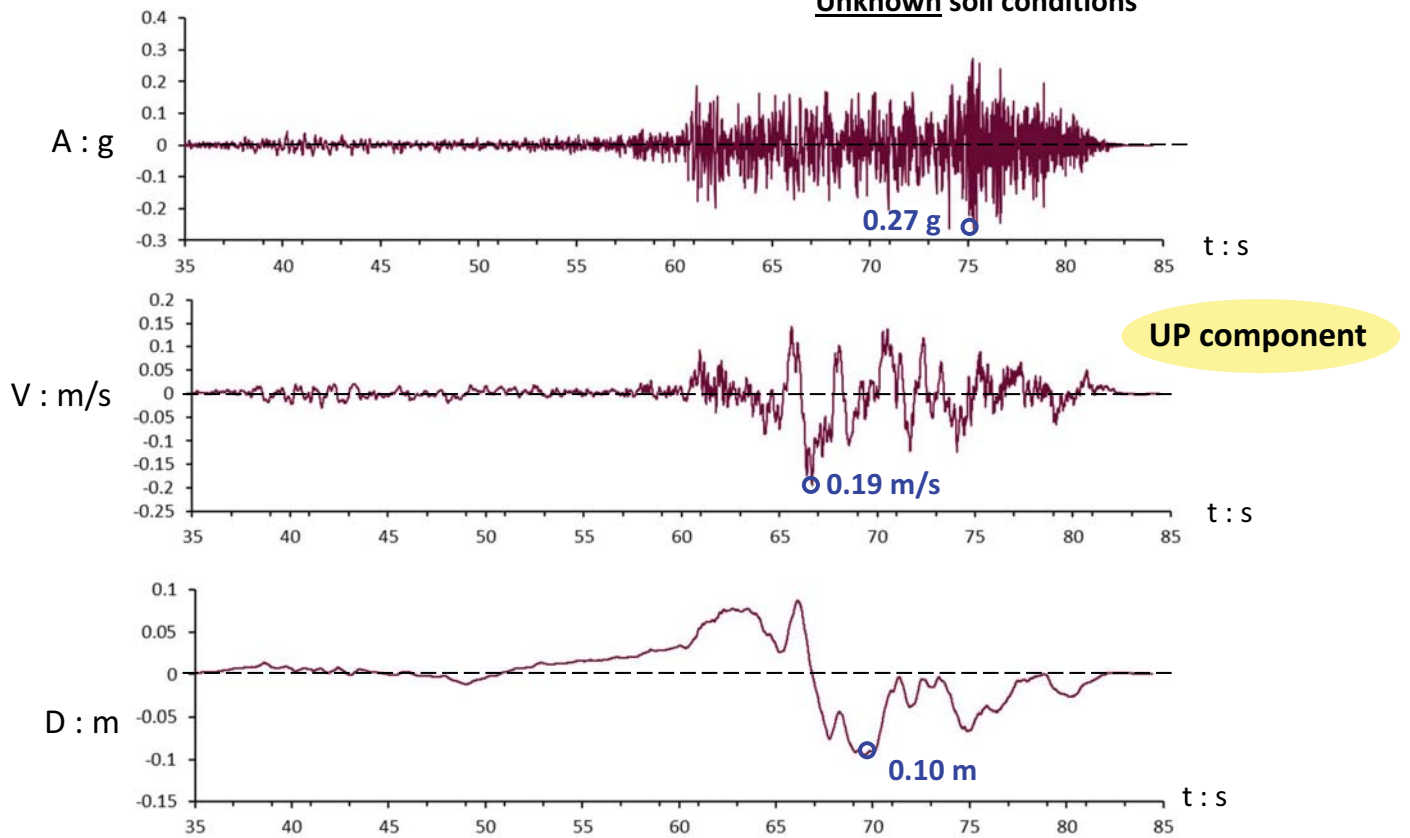
Unknown soil conditions



1st Mainshock $M_w 7.8$

Station 3146: at [Kahramanmaras Pazarck](#)

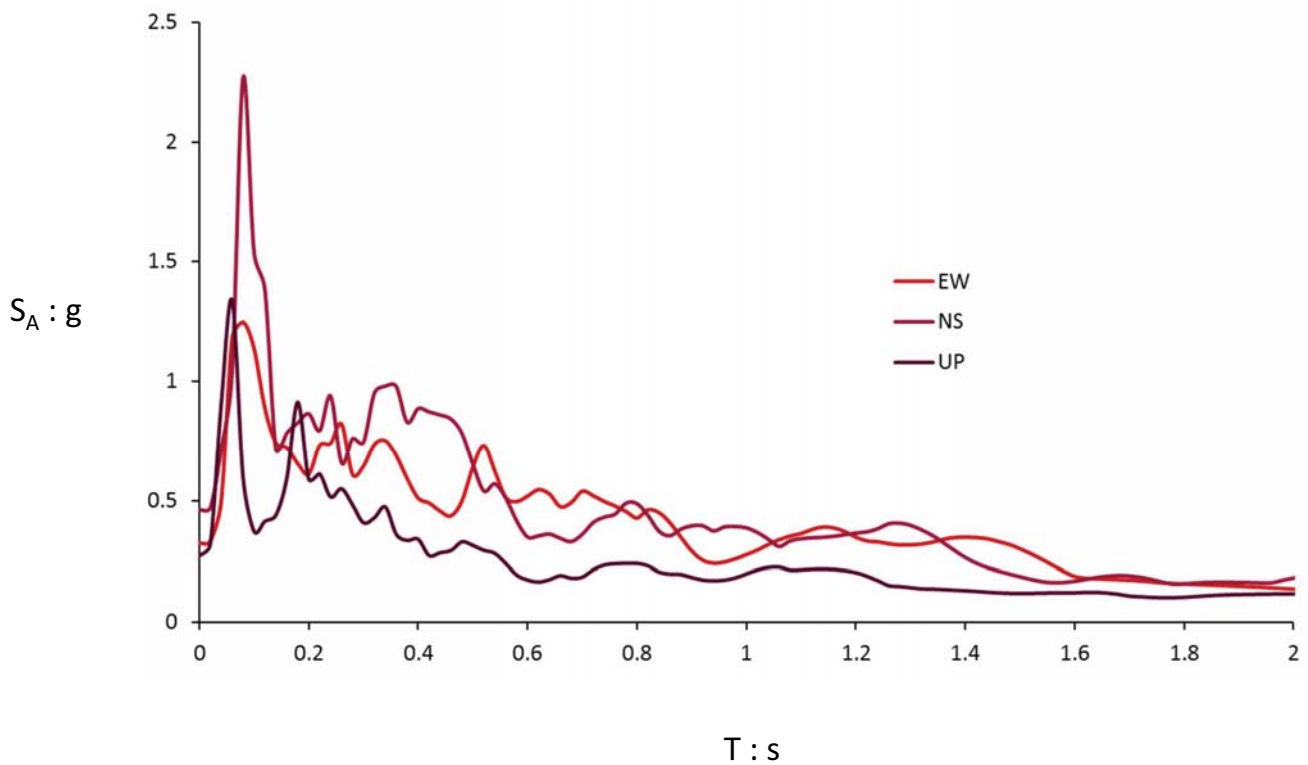
Unknown soil conditions



1st Mainshock $M_w 7.8$

Station 3146: at [Kahramanmaras Pazarck](#)

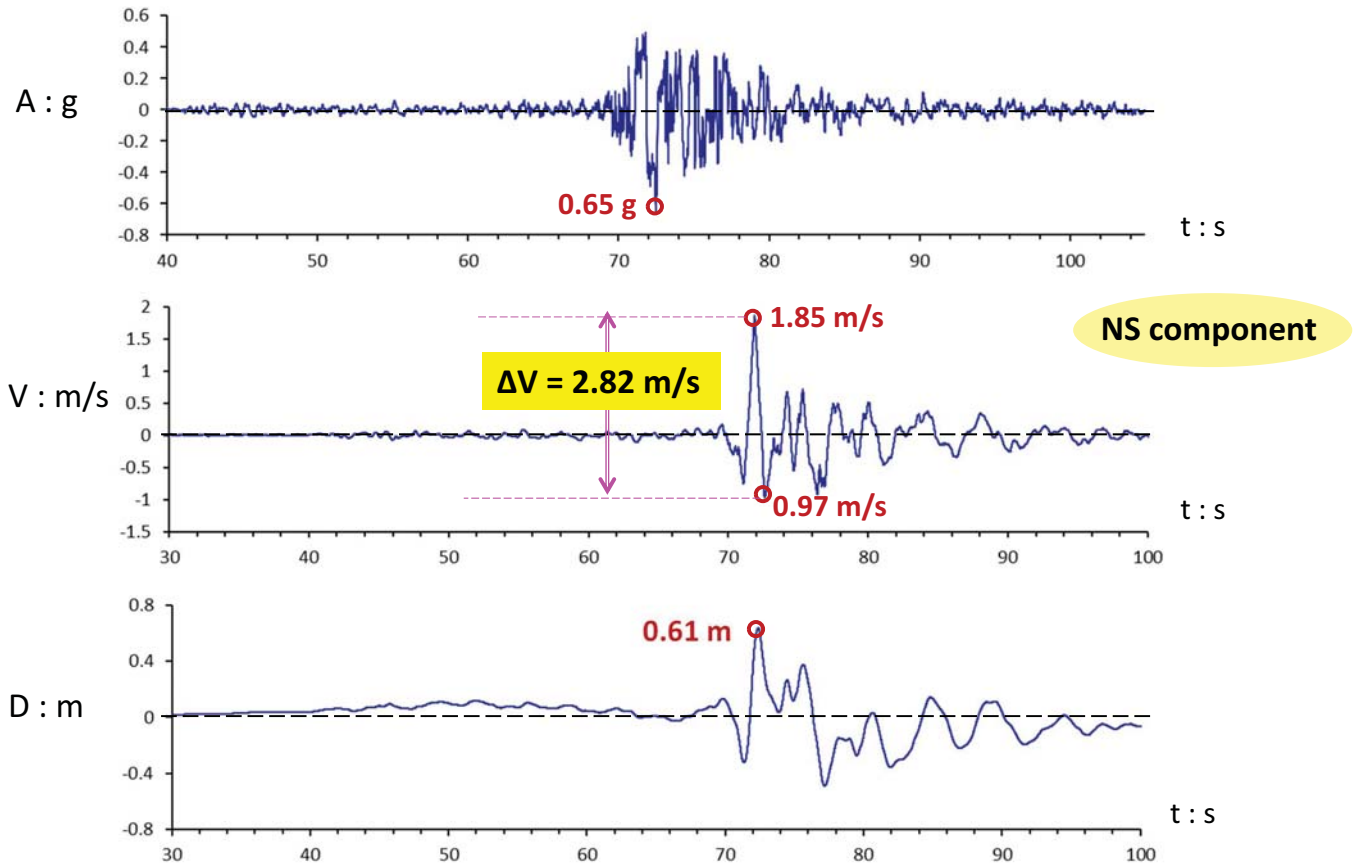
Unknown soil conditions



1st Mainshock $M_w 7.8$

Station 3123: at Kahramanmaras Pazarck

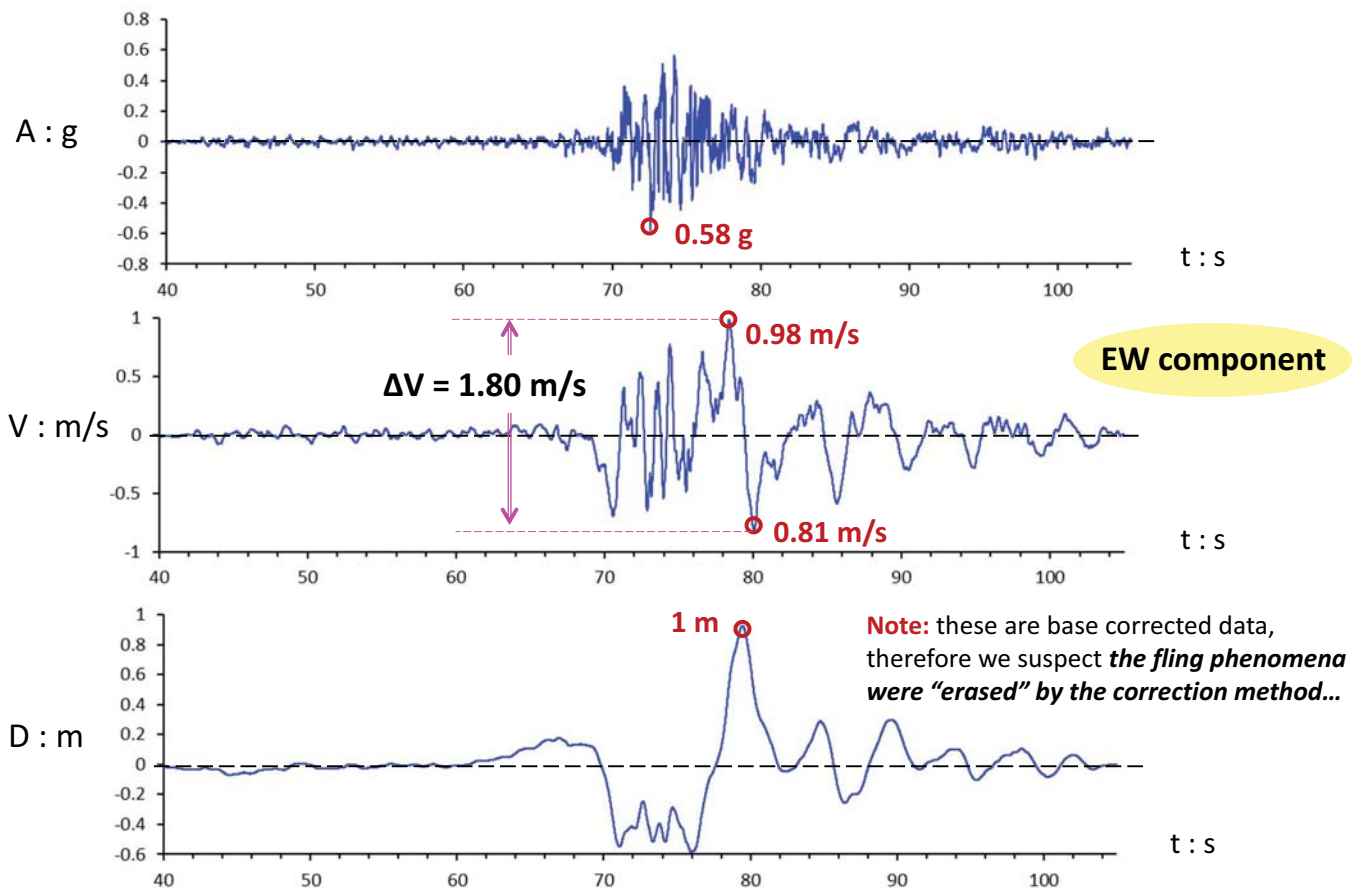
Free Field $V_{S30} = 470$ m/s (EC8 Type B)



1st Mainshock $M_w 7.8$

Station 3123: at Kahramanmaras Pazarck

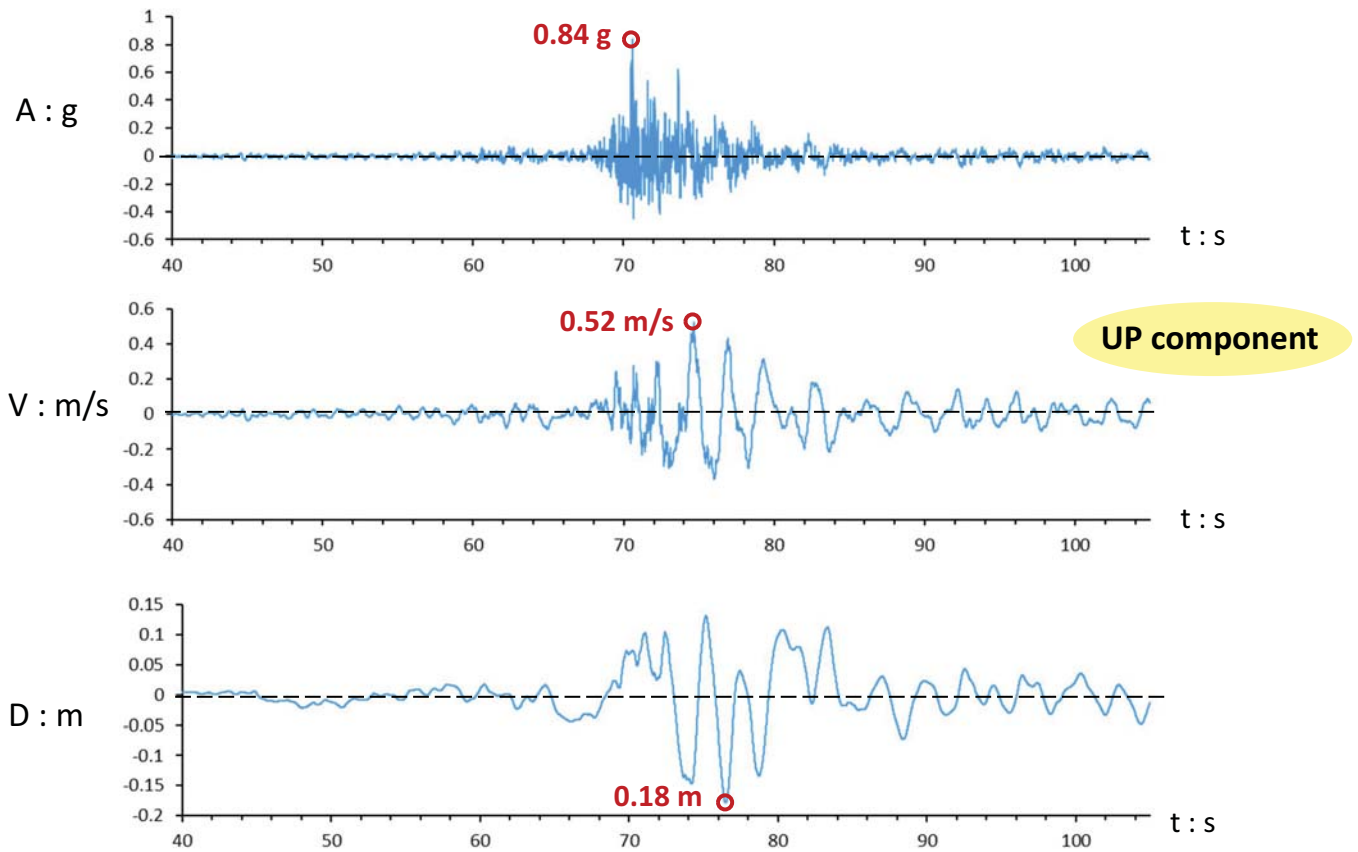
Free Field $V_{S30} = 470$ m/s (EC8 Type B)



1st Mainshock $M_w 7.8$

Station 3123: at Kahramanmaras Pazarck

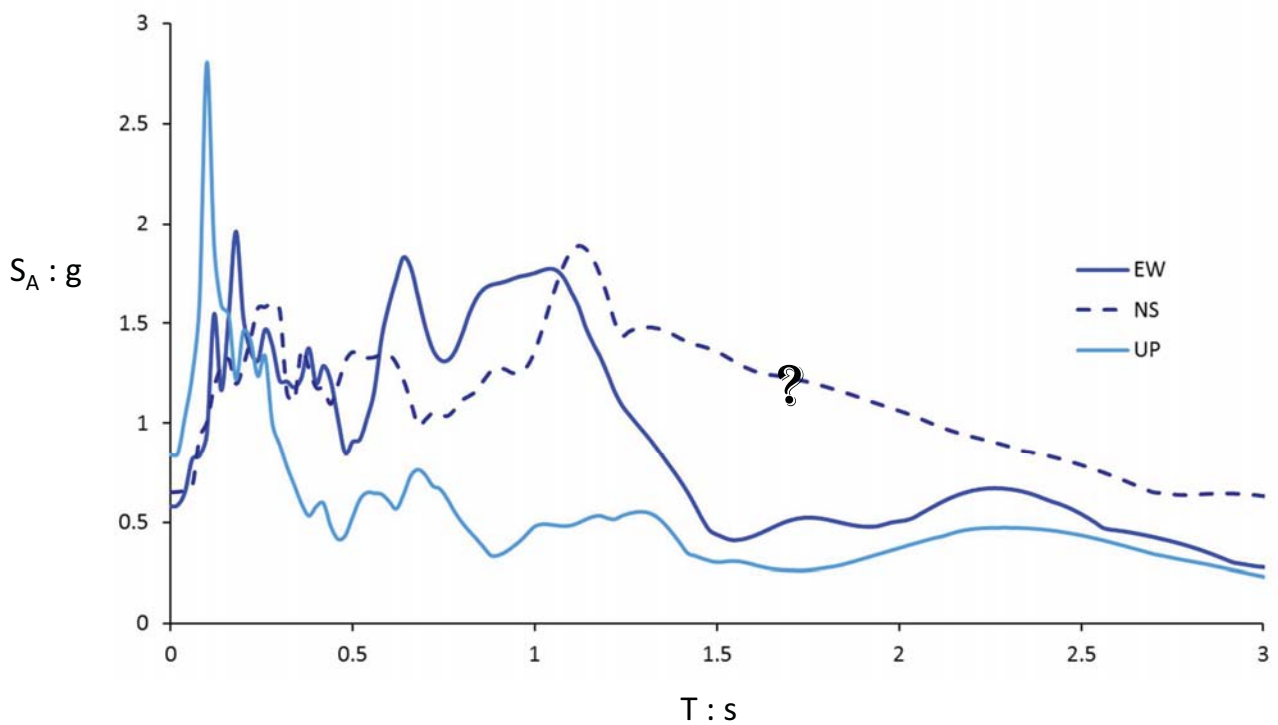
Free Field $V_{S30} = 470$ m/s (EC8 Type B)



1st Mainshock $M_w 7.8$

Station 3123: at Kahramanmaras Pazarck

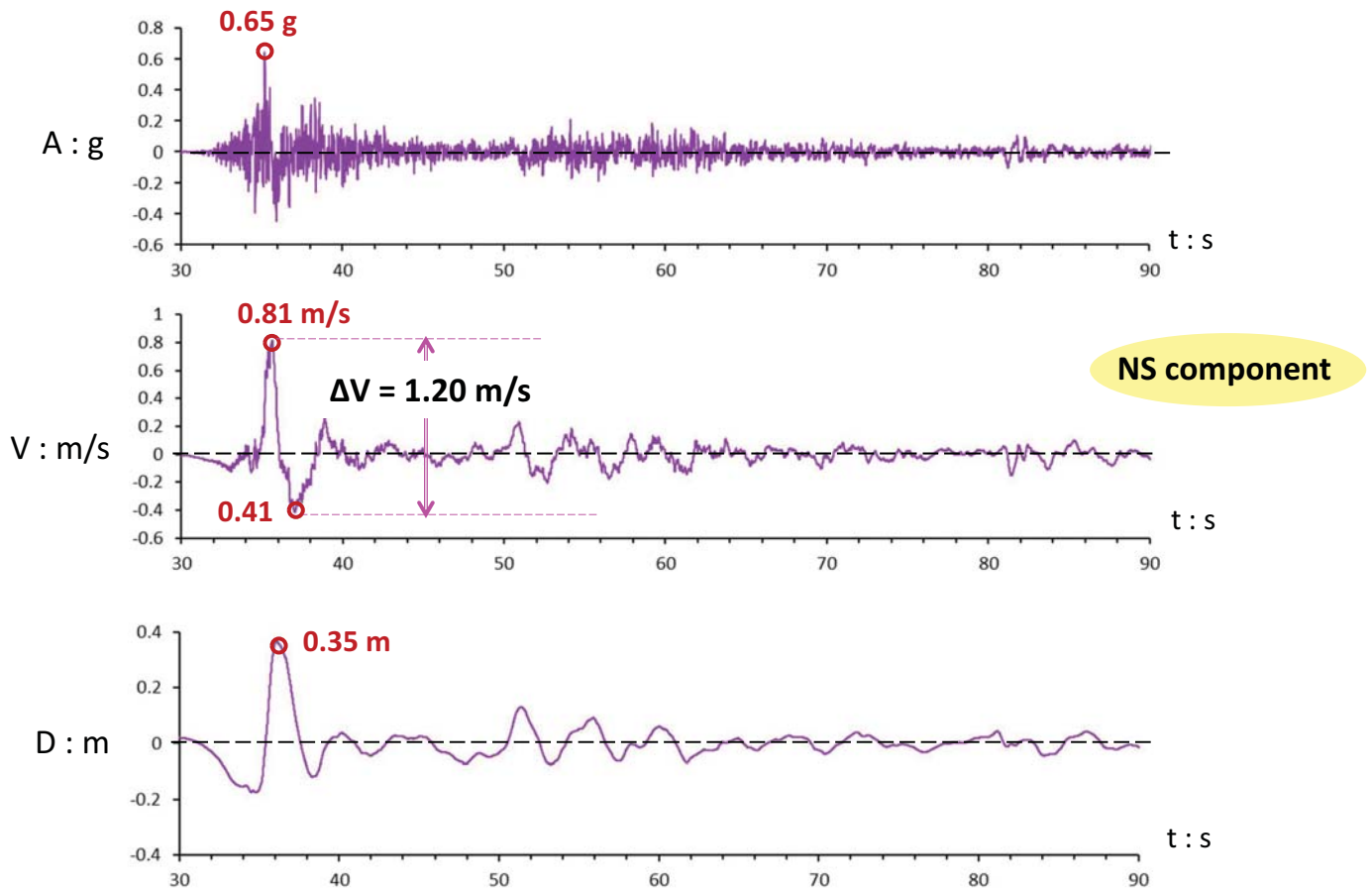
Free Field $V_{S30} = 470$ m/s (EC8 Type B)



1st Mainshock M_w7.8

Station NAR: at Kahramanmaras Pazarck

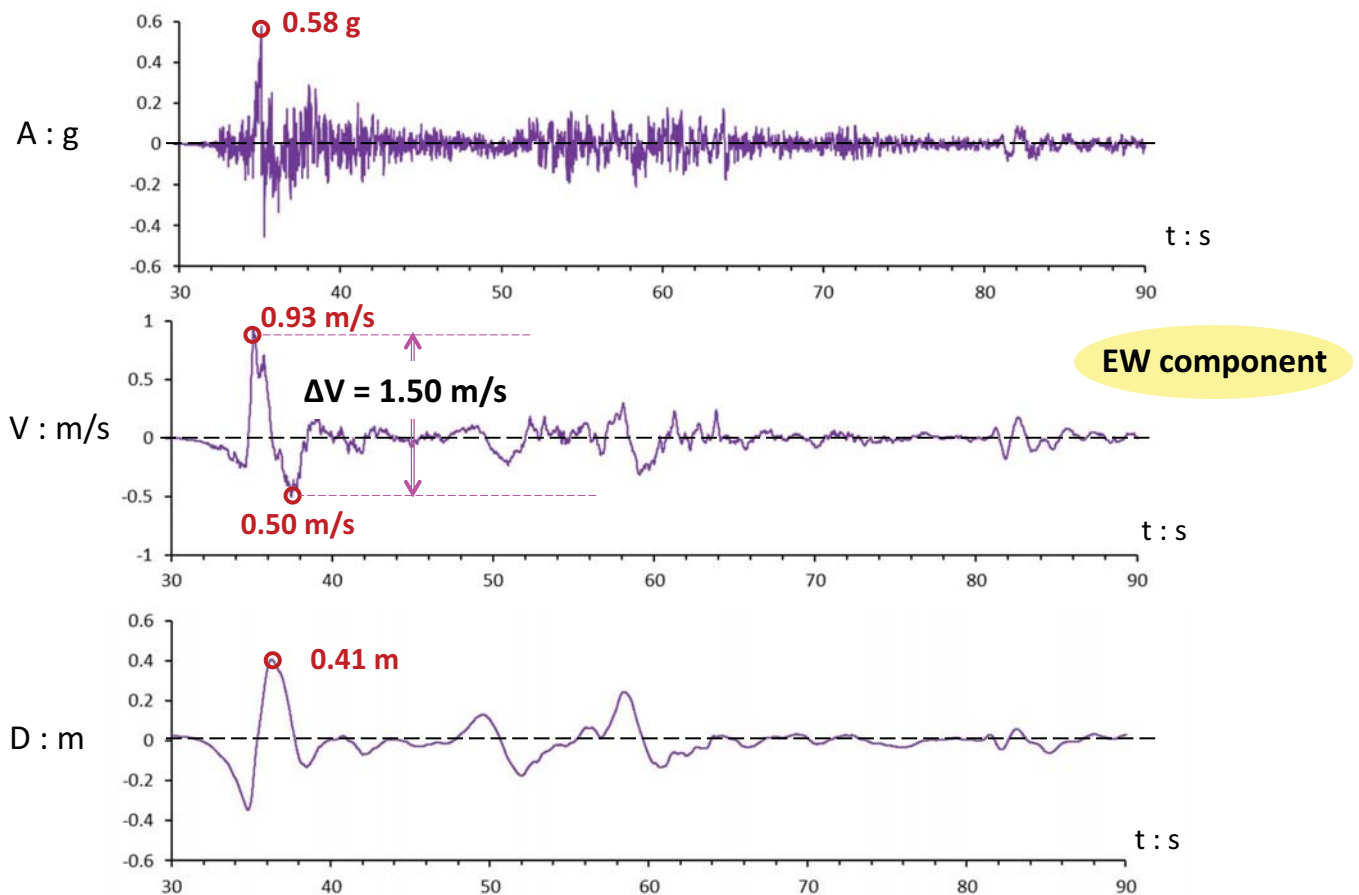
Unknown soil type



1st Mainshock M_w7.8

Station NAR: at Kahramanmaras Pazarck

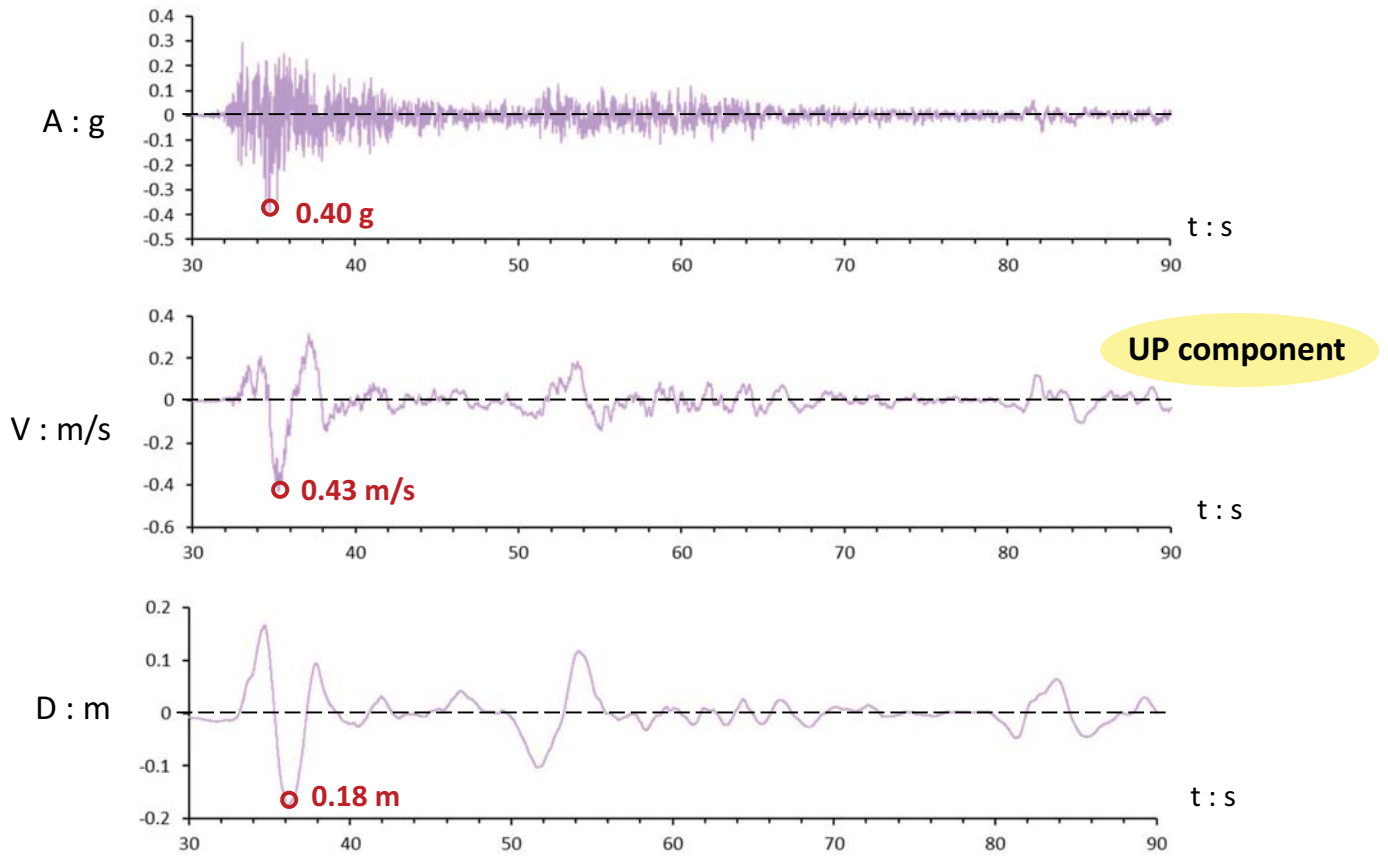
Unknown soil type



1st Mainshock $M_w 7.8$

Station NAR: at Kahramanmaras Pazarck

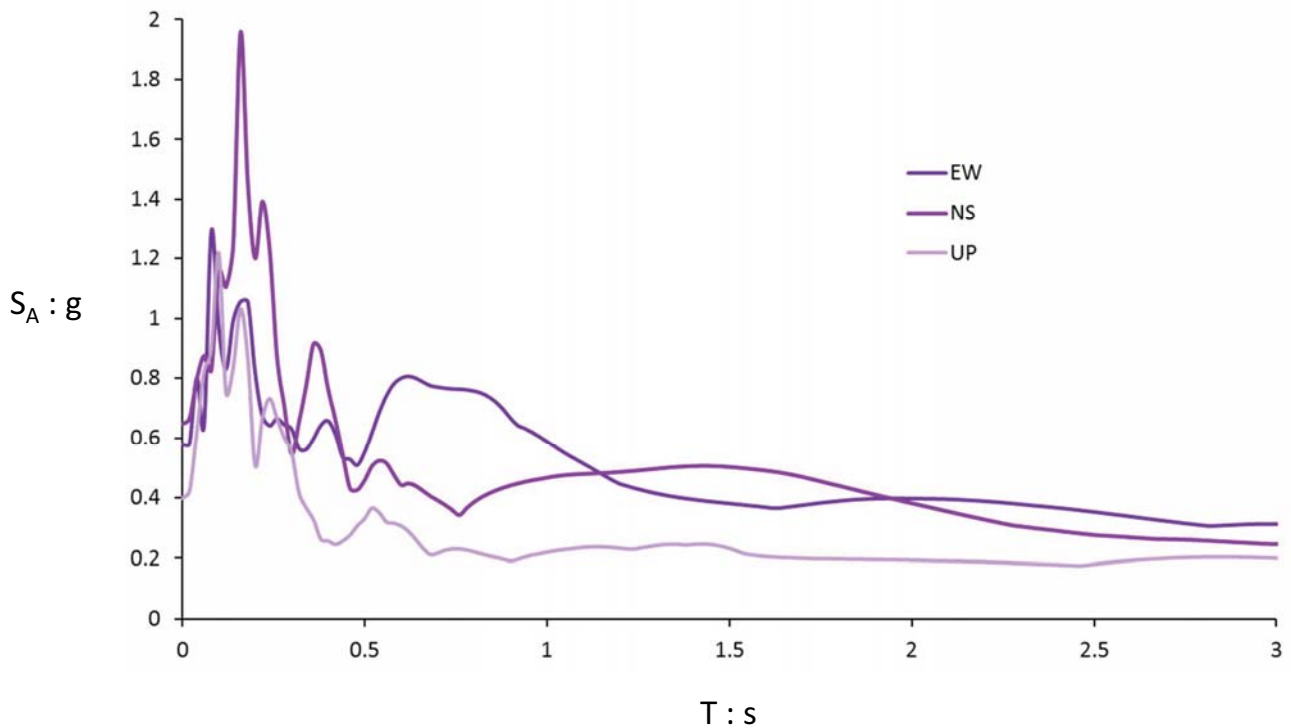
Unknown soil type



1st Mainshock $M_w 7.8$

Station NAR: at Kahramanmaras Pazarck

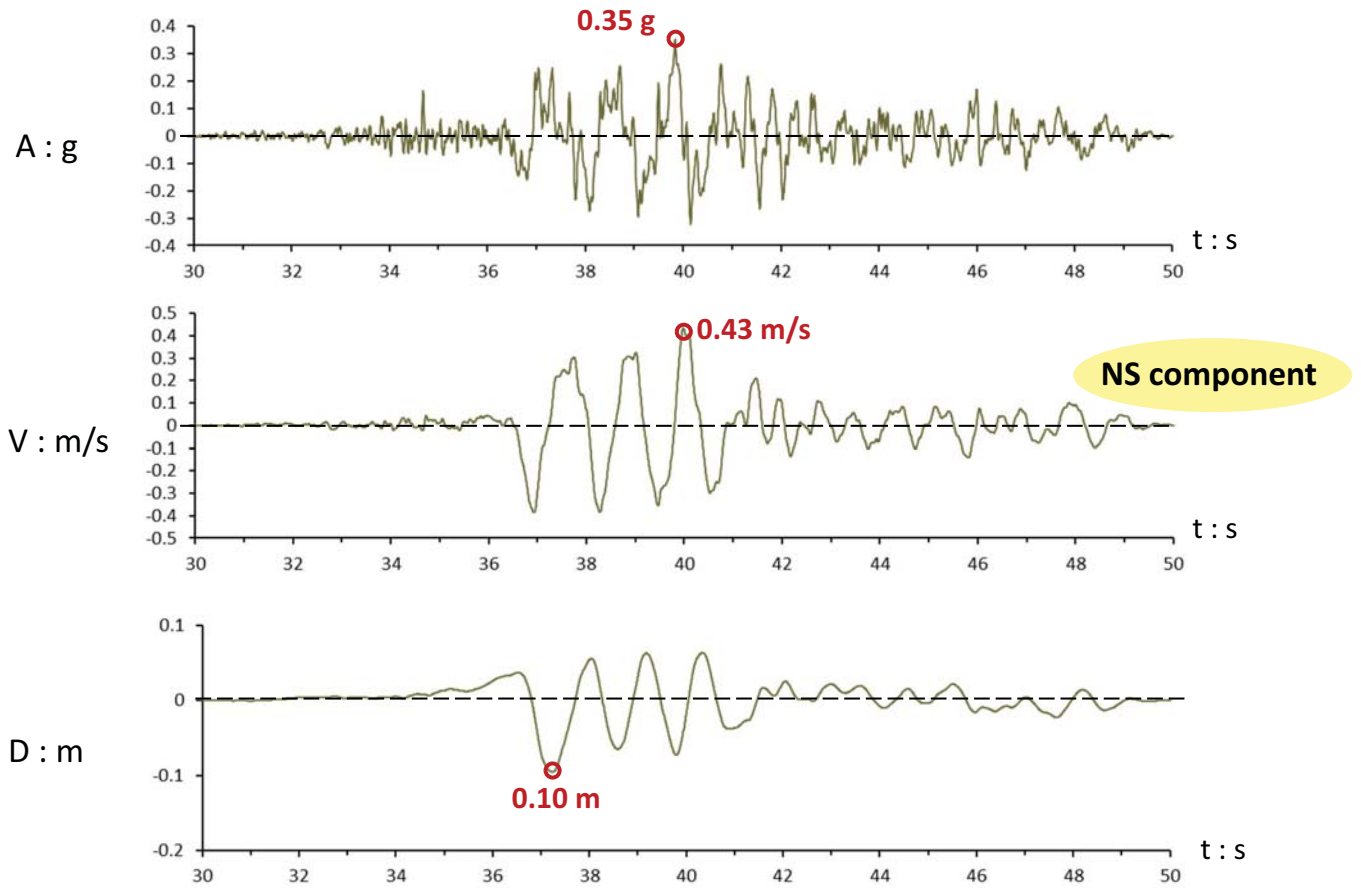
Unknown soil type



1st Mainshock $M_w 7.8$

Station 4632: at Kahramanmaras Pazarck

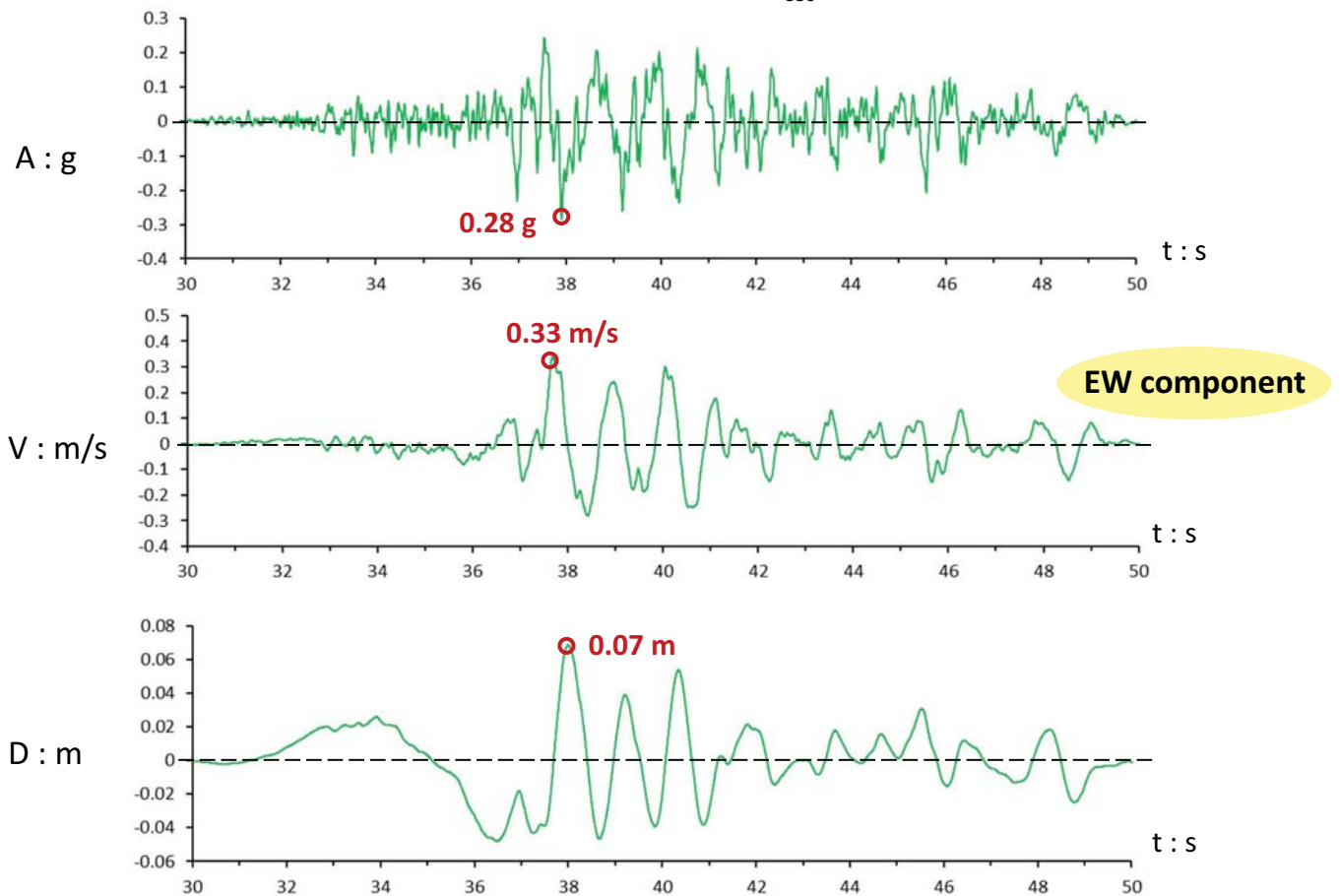
$V_{S30} = 428$ m/s (EC8 Type B)



1st Mainshock $M_w 7.8$

Station 4632: at Kahramanmaras Pazarck

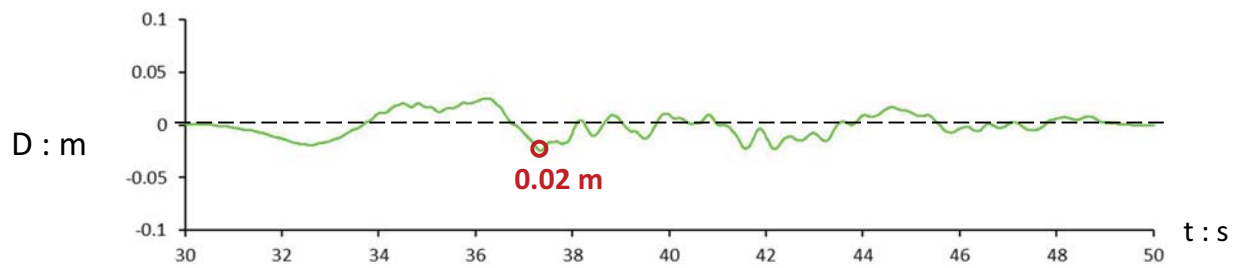
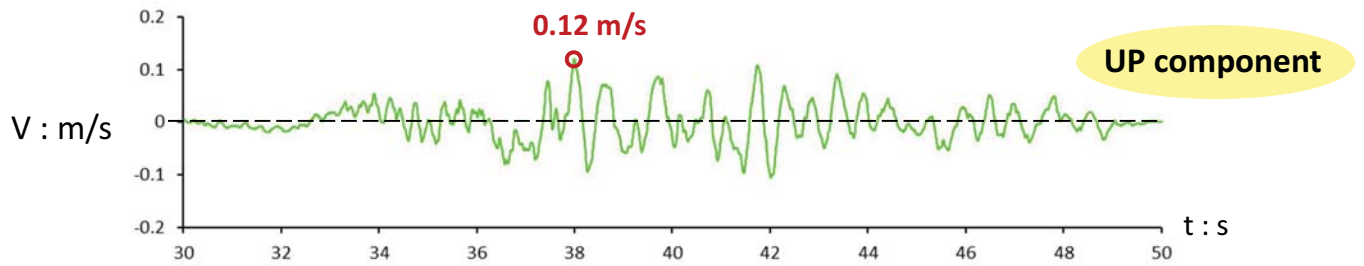
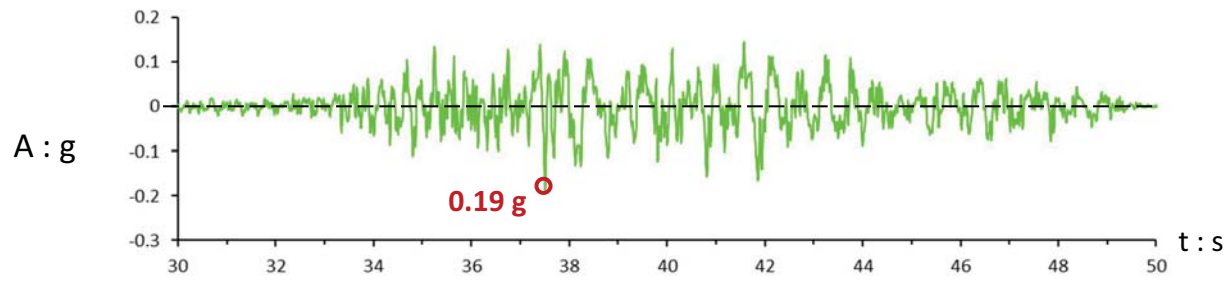
$V_{S30} = 428$ m/s (EC8 Type B)



1st Mainshock $M_W 7.8$

Station 4632: at [Kahramanmaras Pazarck](#)

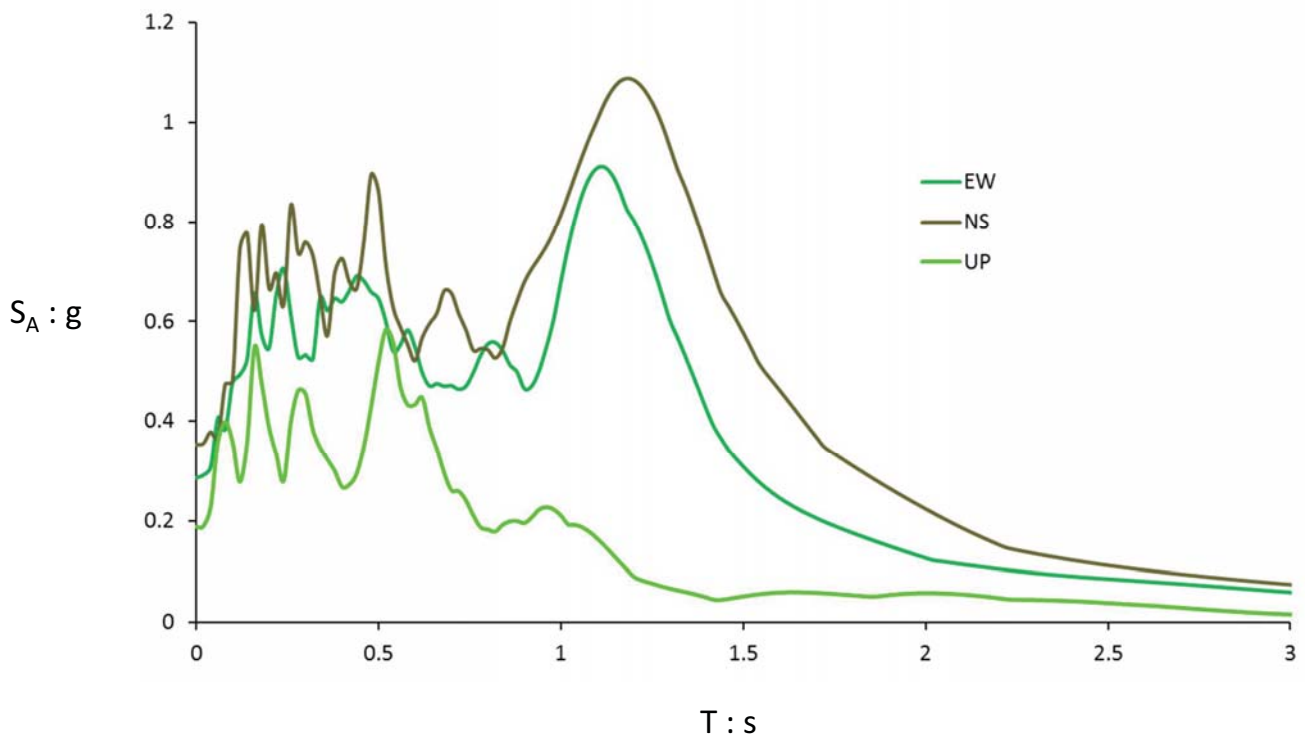
$V_{S30} = 428$ m/s (EC8 Type B)



1st Mainshock $M_W 7.8$

Station 4632: at [Kahramanmaras Pazarck](#)

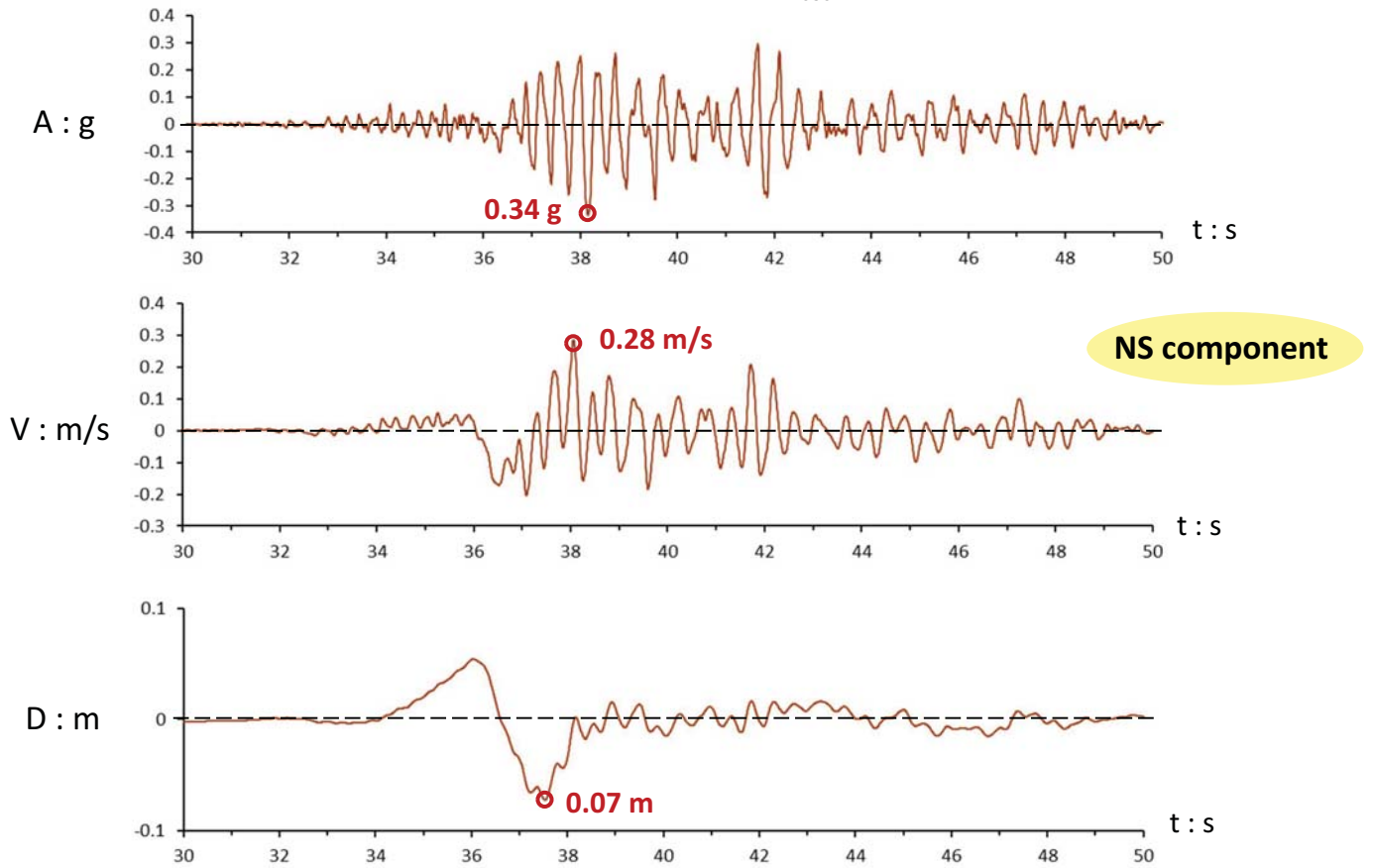
$V_{S30} = 428$ m/s (EC8 Type B)



1st Mainshock M_w7.8

Station 4629: at Kahramanmaras Pazarcik

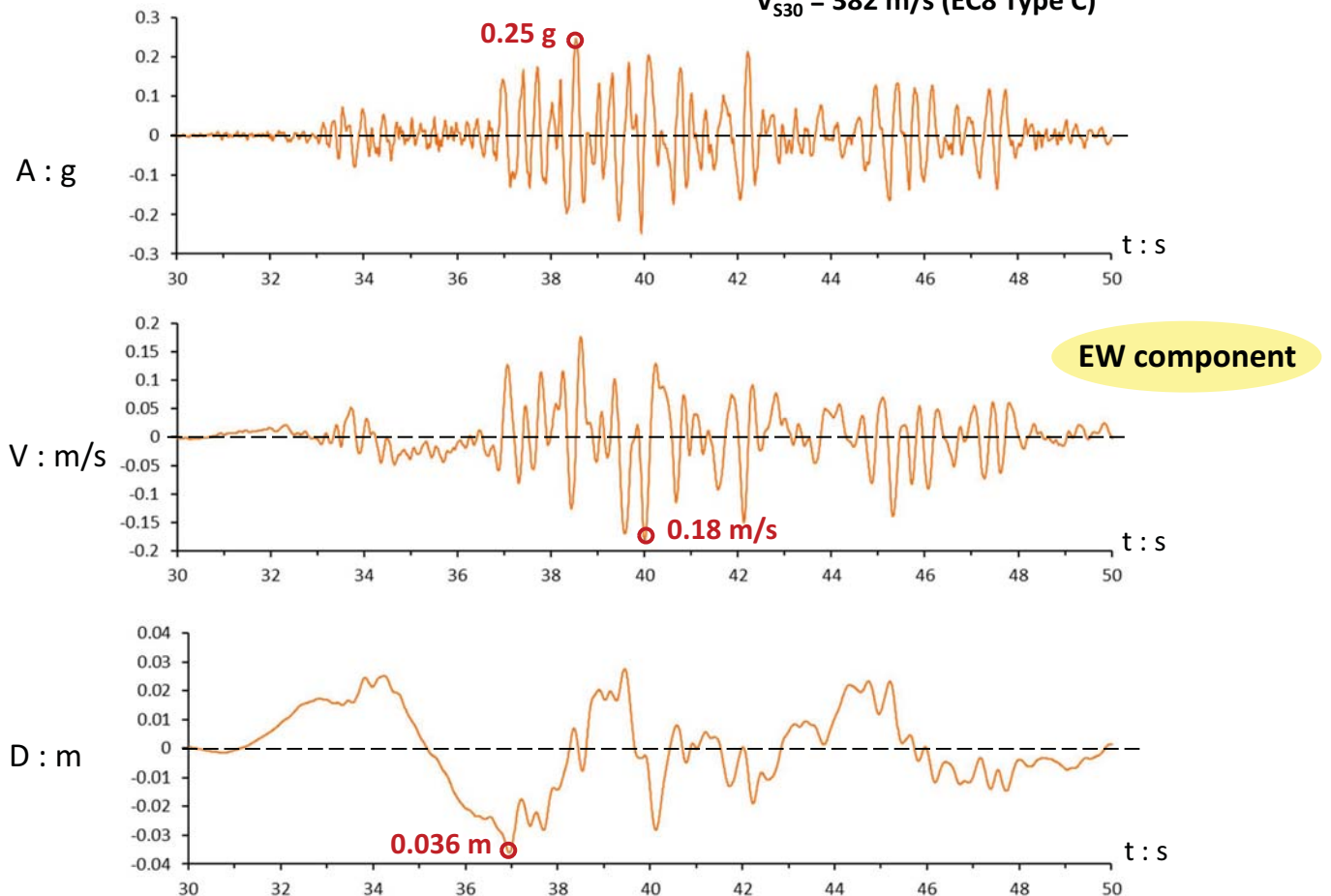
V_{S30} = 382 m/s (EC8 Type C)



1st Mainshock M_w7.8

Station 4629: at Kahramanmaras Pazarcik

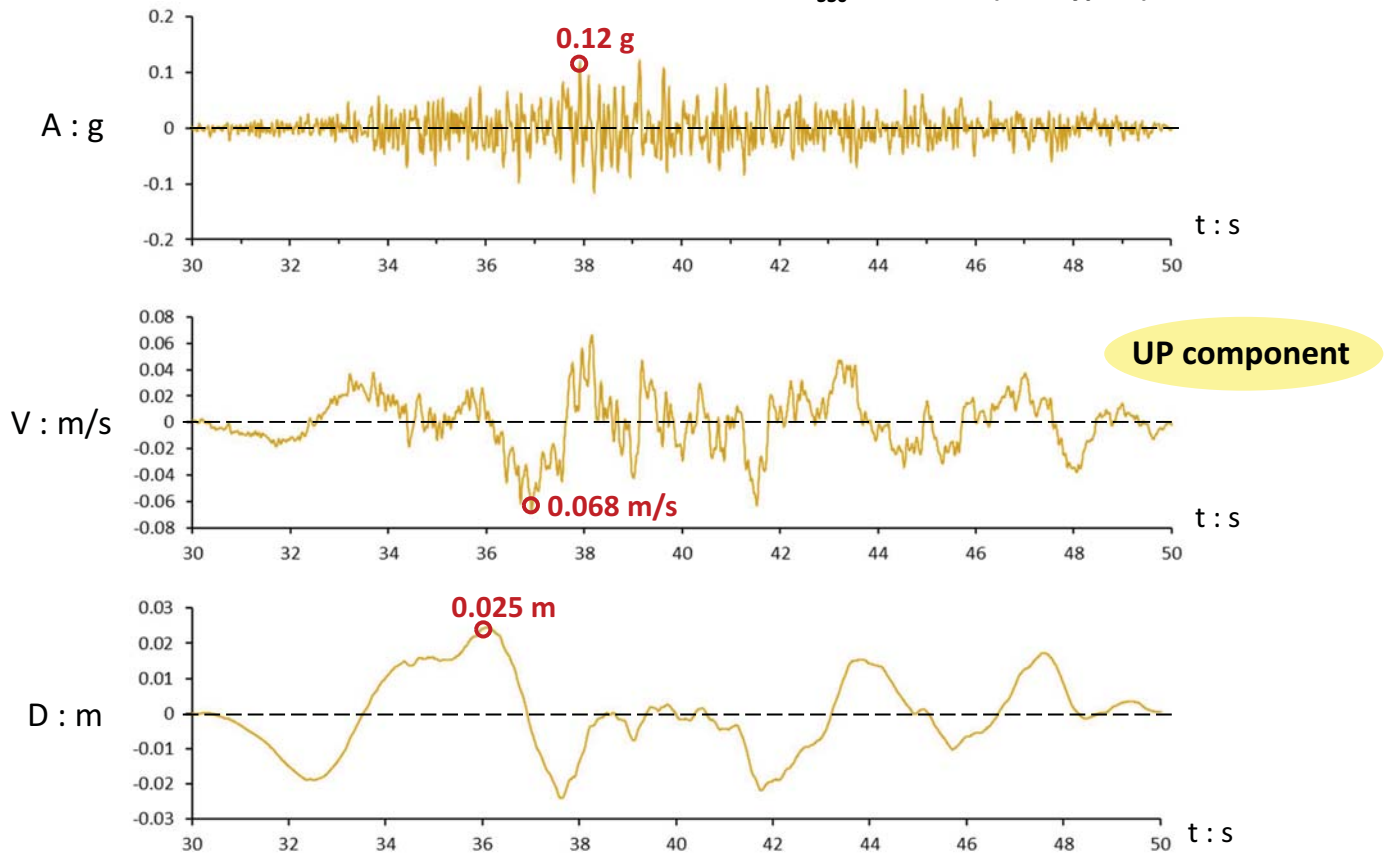
V_{S30} = 382 m/s (EC8 Type C)



1st Mainshock M_w7.8

Station 4629: at [Kahramanmaras Pazarck](#)

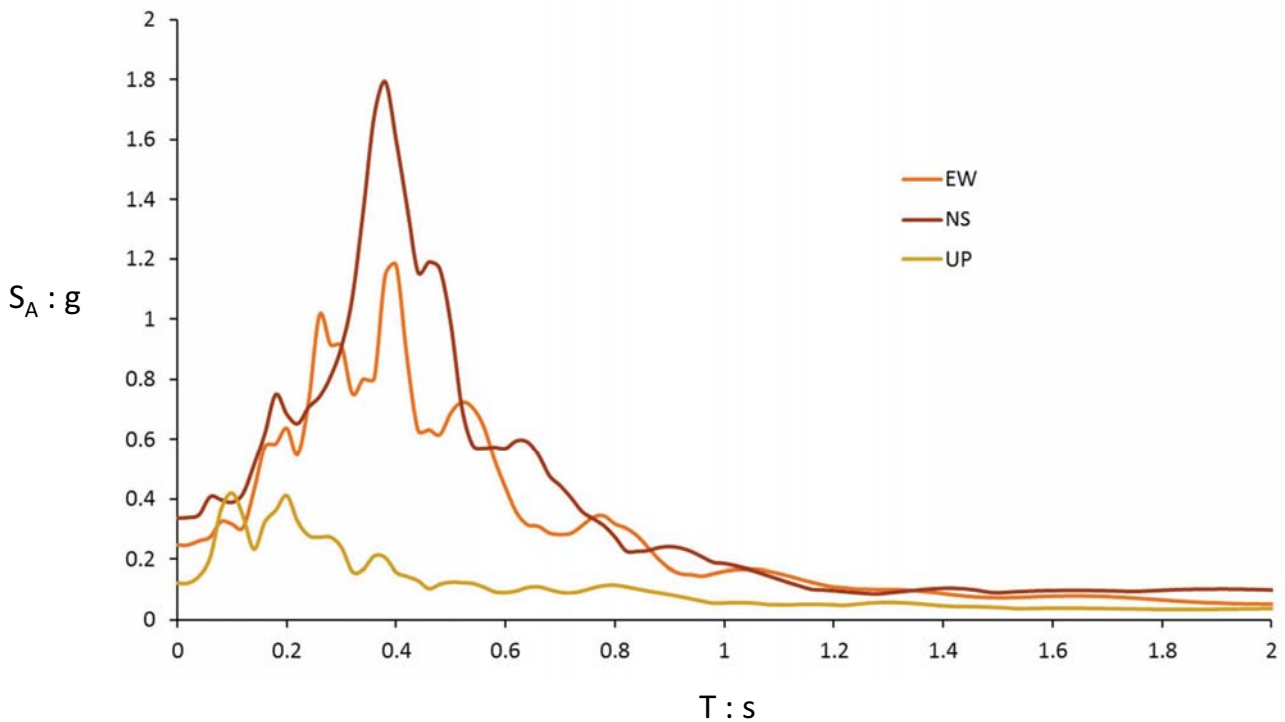
V_{S30} = 382 m/s (EC8 Type C)



1st Mainshock M_w7.8

Station 4629: at [Kahramanmaras Pazarck](#)

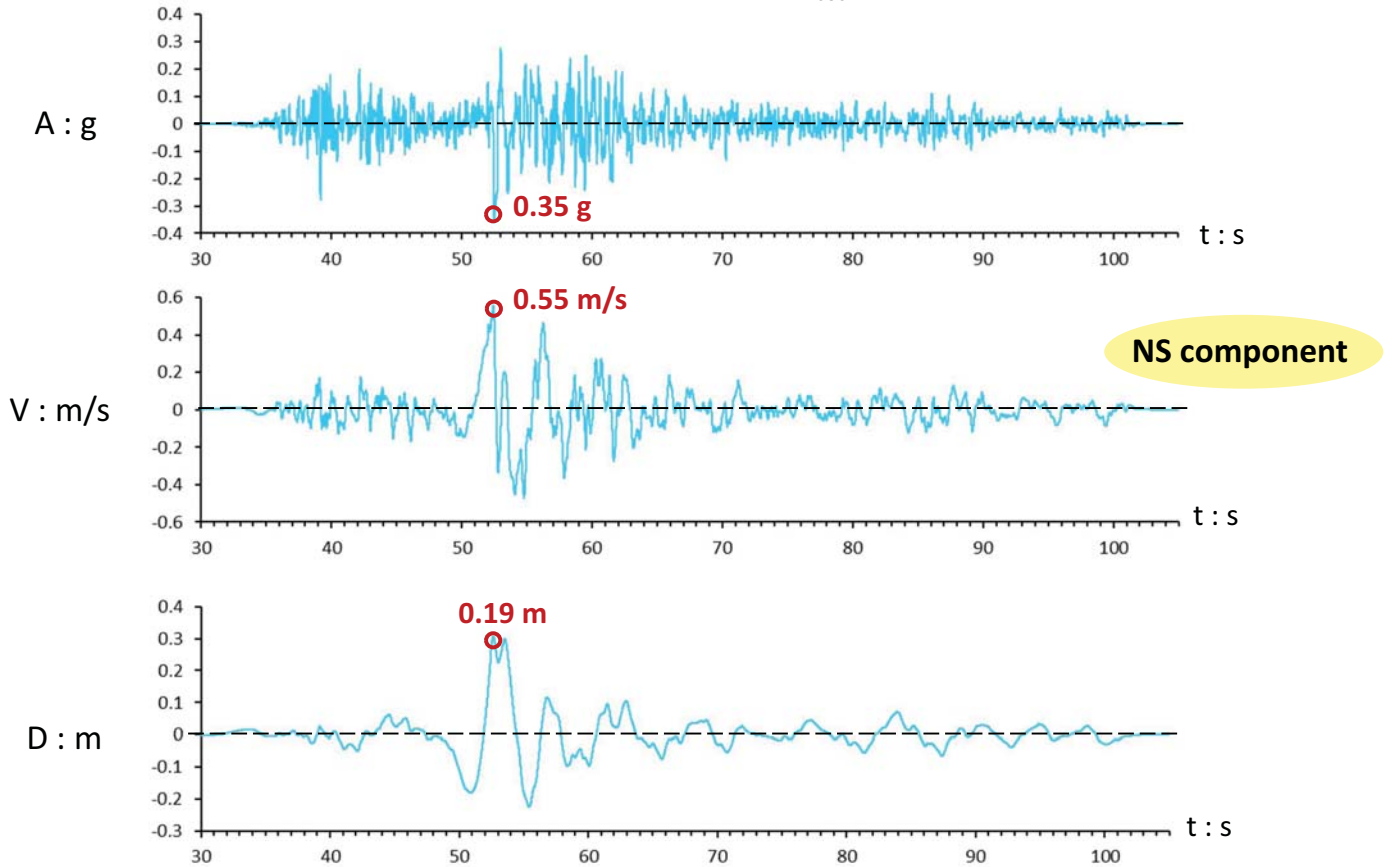
V_{S30} = 382 m/s (EC8 Type C)



1st Mainshock $M_w 7.8$

Station 4624: at **Kahramanmaras Pazarcik**

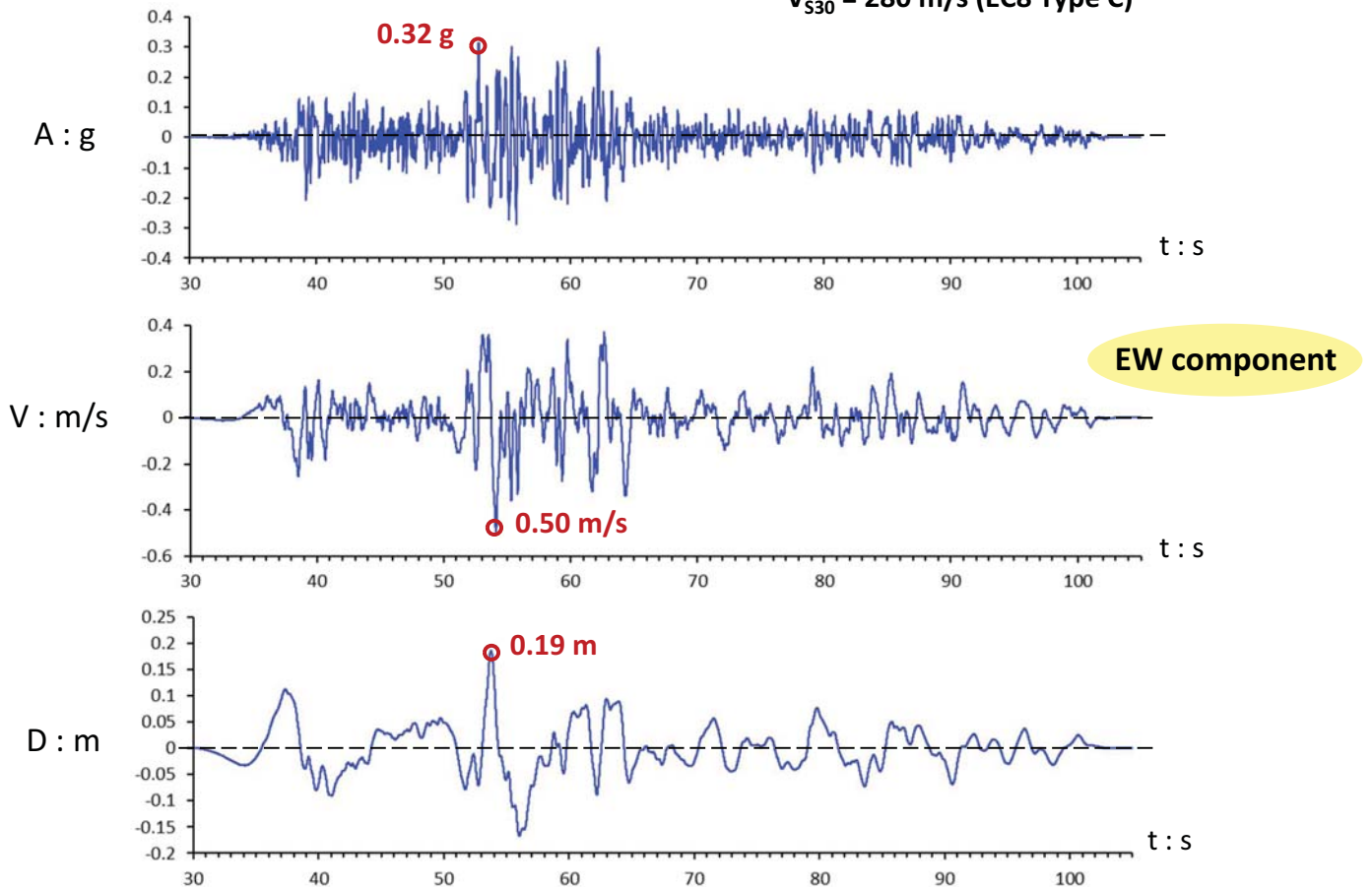
$V_{S30} = 280$ m/s (EC8 Type C)



1st Mainshock $M_w 7.8$

Station 4624: at **Kahramanmaras Pazarcik**

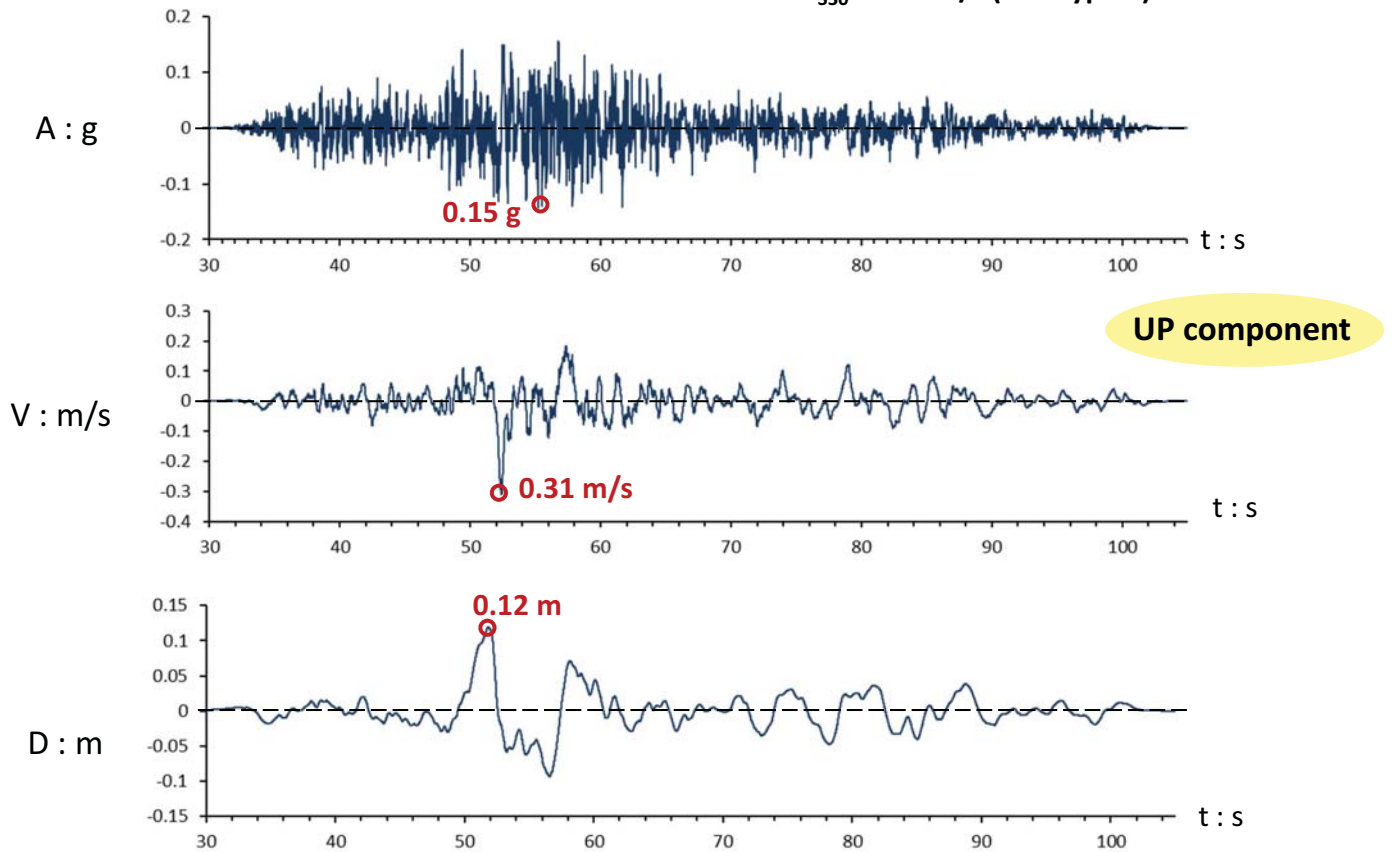
$V_{S30} = 280$ m/s (EC8 Type C)



1st Mainshock $M_W 7.8$

Station 4624: at [Kahramanmaras Pazarck](#)

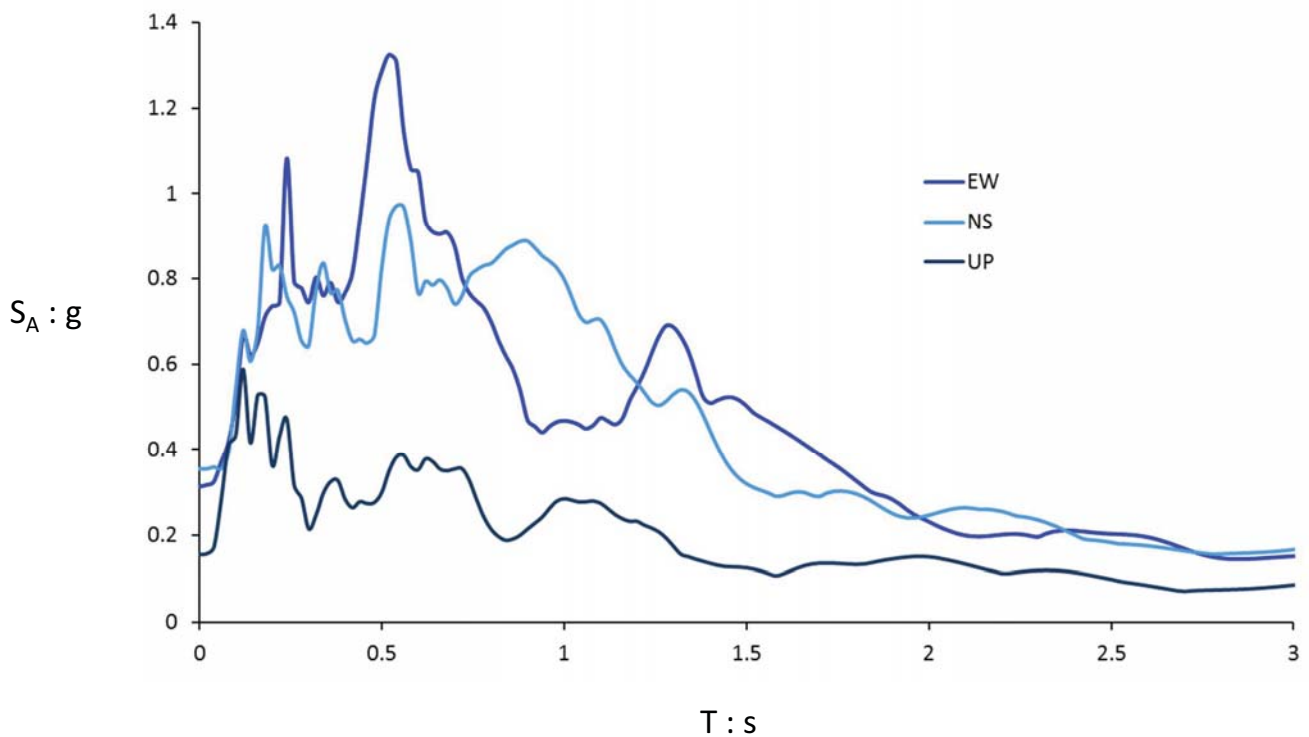
$V_{S30} = 280$ m/s (EC8 Type C)



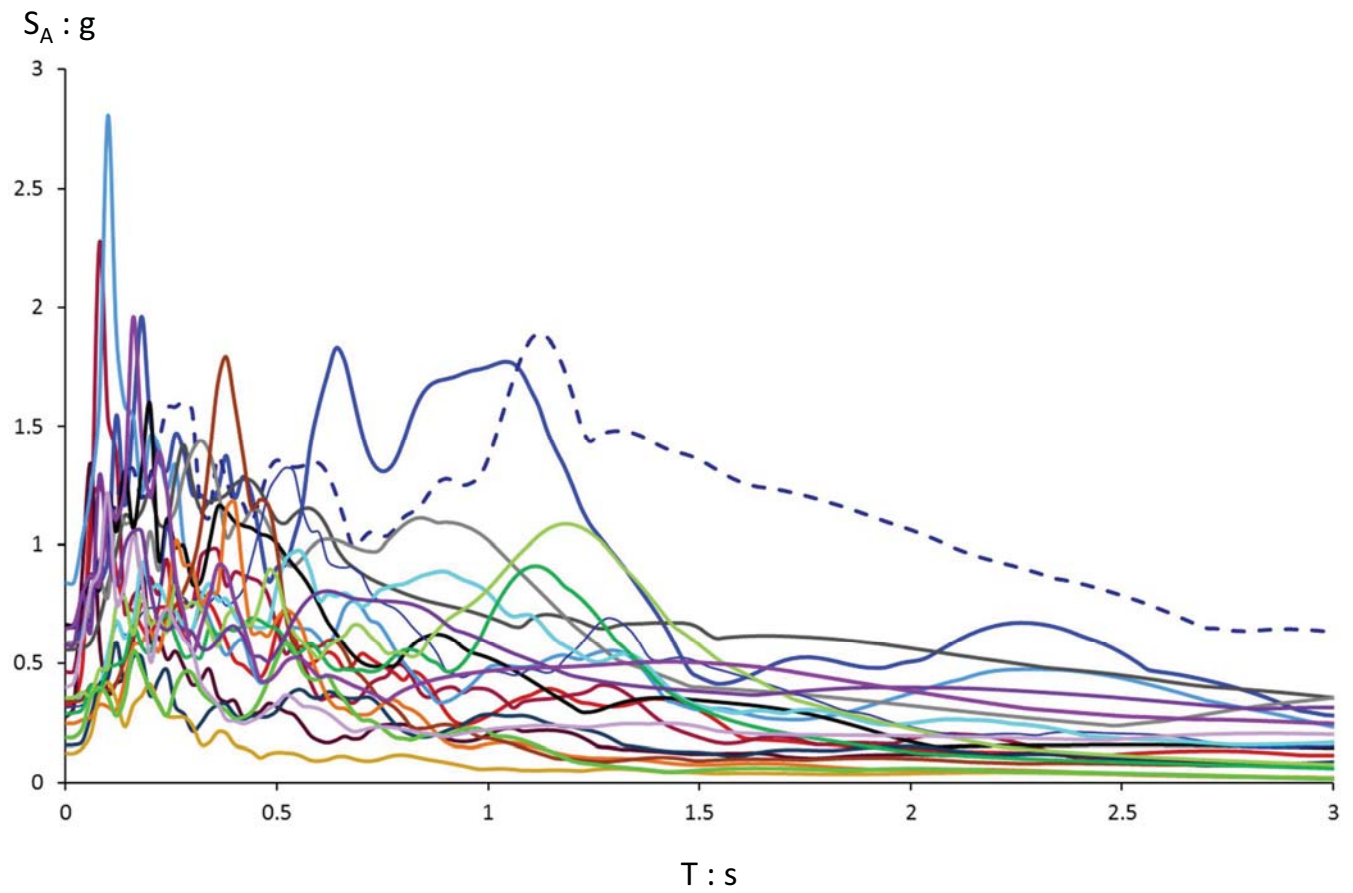
1st Mainshock $M_W 7.8$

Station 4624: at [Kahramanmaras Pazarck](#)

$V_{S30} = 280$ m/s (EC8 Type C)



1st Mainshock $M_W 7.8$



- 1st mainshock
- ▲ 2nd mainshock

