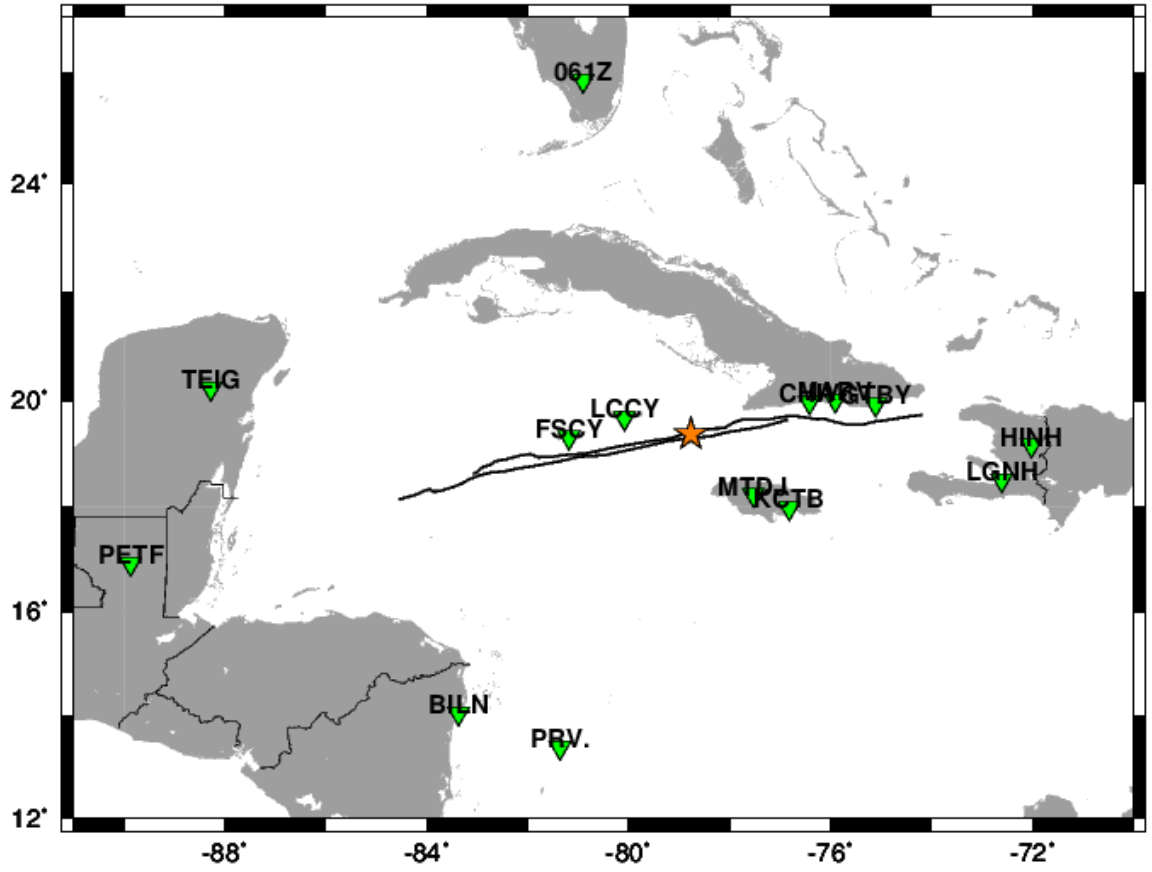
2020-01-28 19:10:24 (UTC) Cayman EQ M7.7
(South of Cuba, near Jamaica)

Updated slip distribution from joint inversion of regional and teleseismic seismograms and GPS data

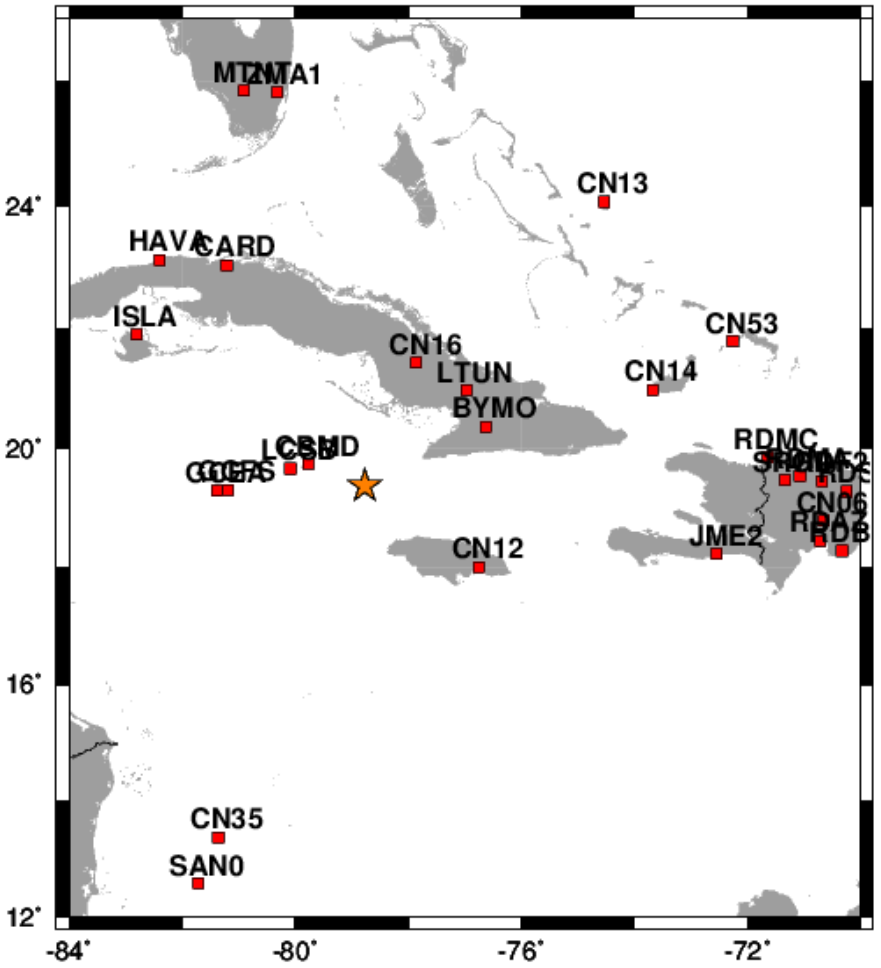
Bertrand Delouis, 21/03/2020

Seismic stations used at regional scale



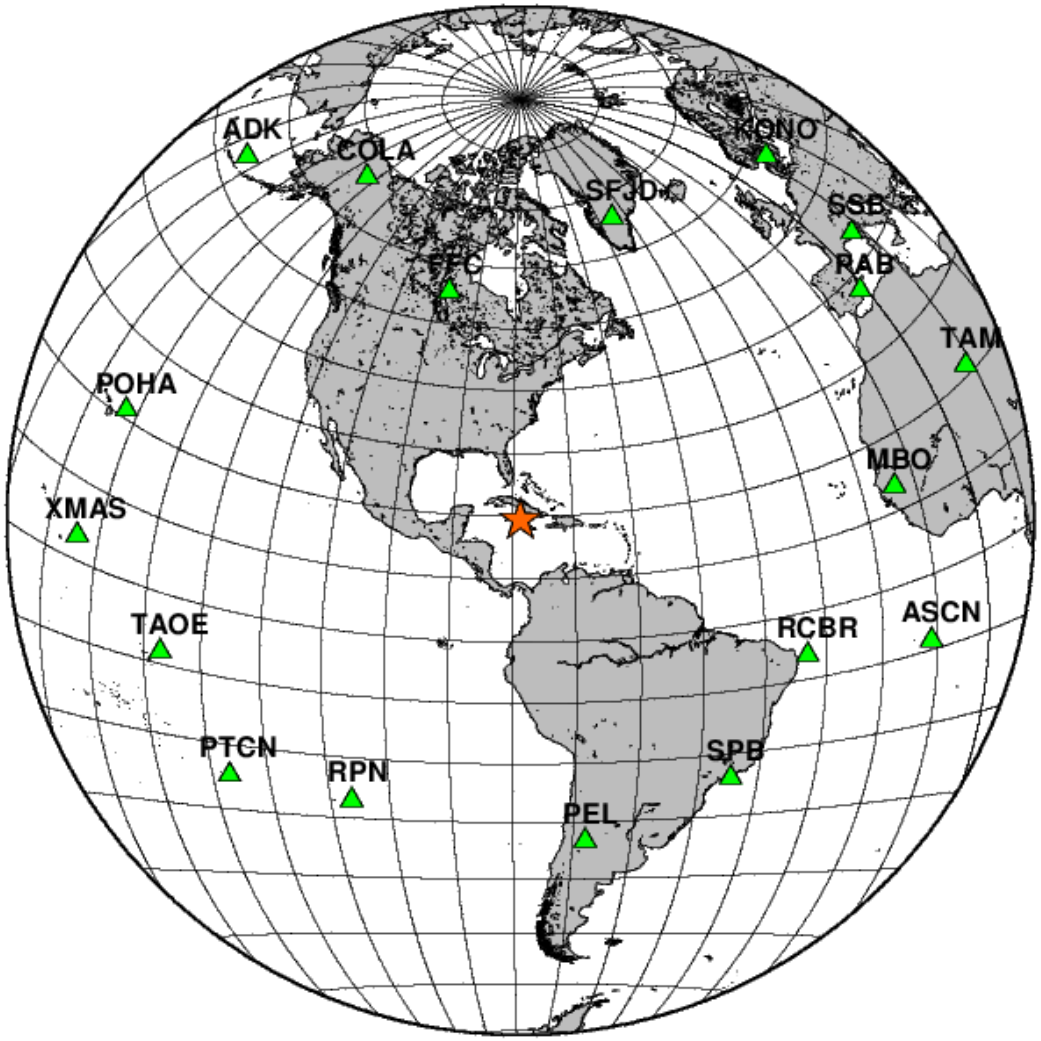
Note: IZAB has a clear problem of instrumental response, it could not be used

GPS stations

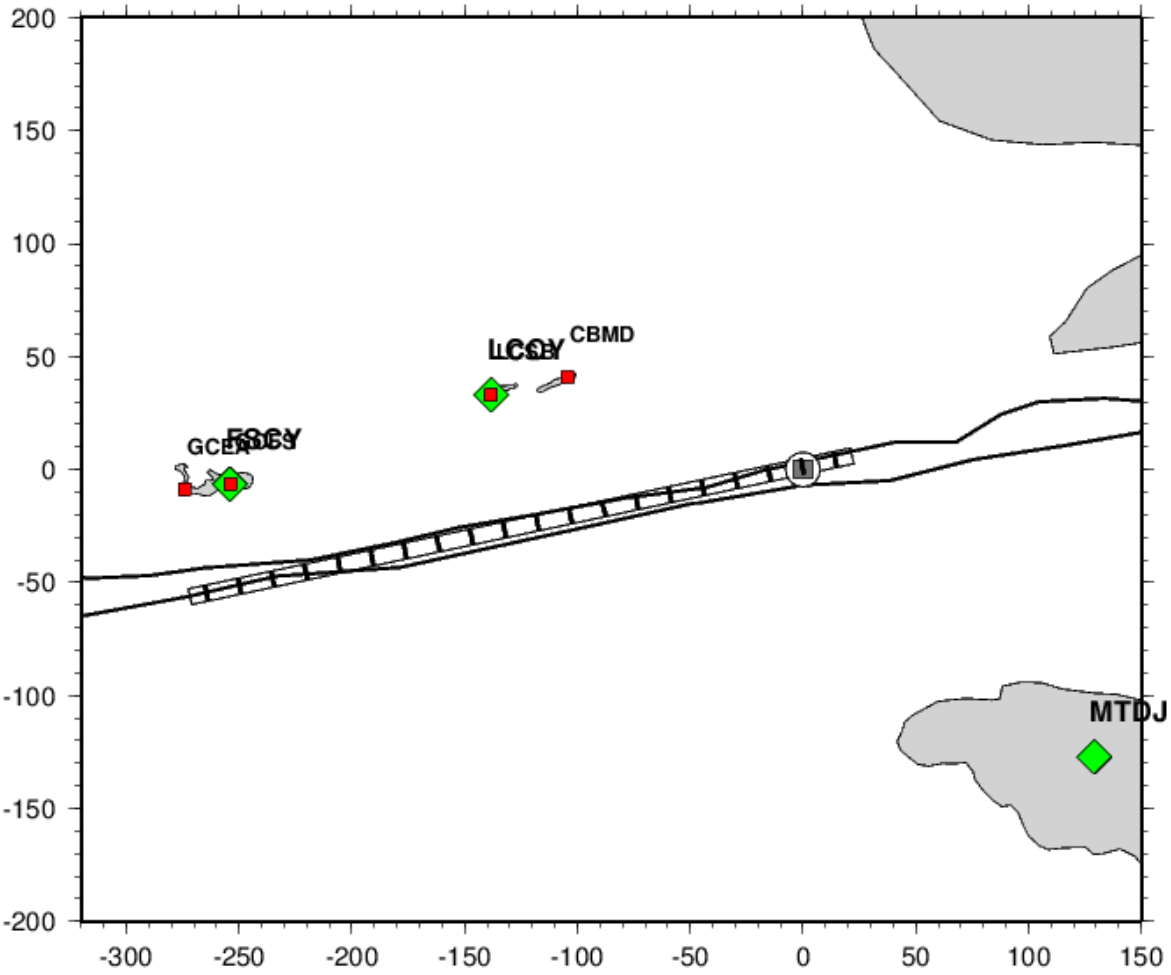


Note: the vertical component of GPS will be used for the 4 closest stations only (Cayman Islands)

Teleseismic stations used in green



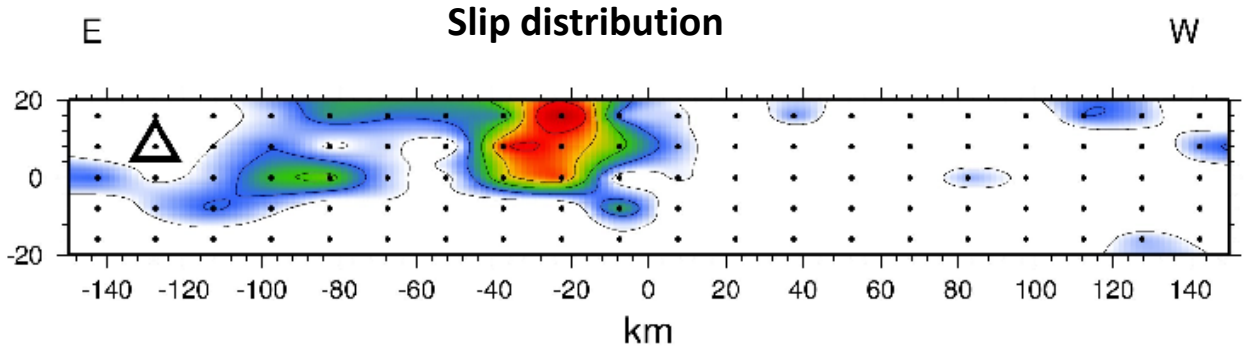
Rupture model: (strike, dip, rake) = (258, 80, -15 +/- 50°)



Hypocenter used:

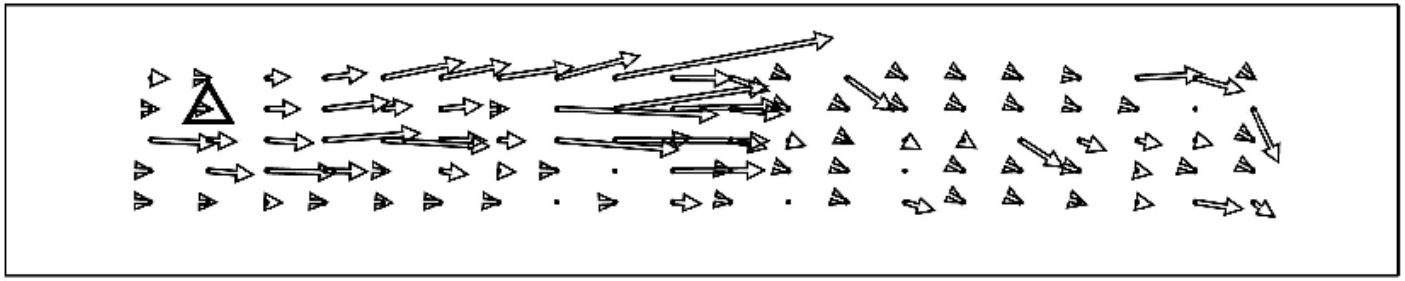
19.370 N
-78.763 E
12 km depth

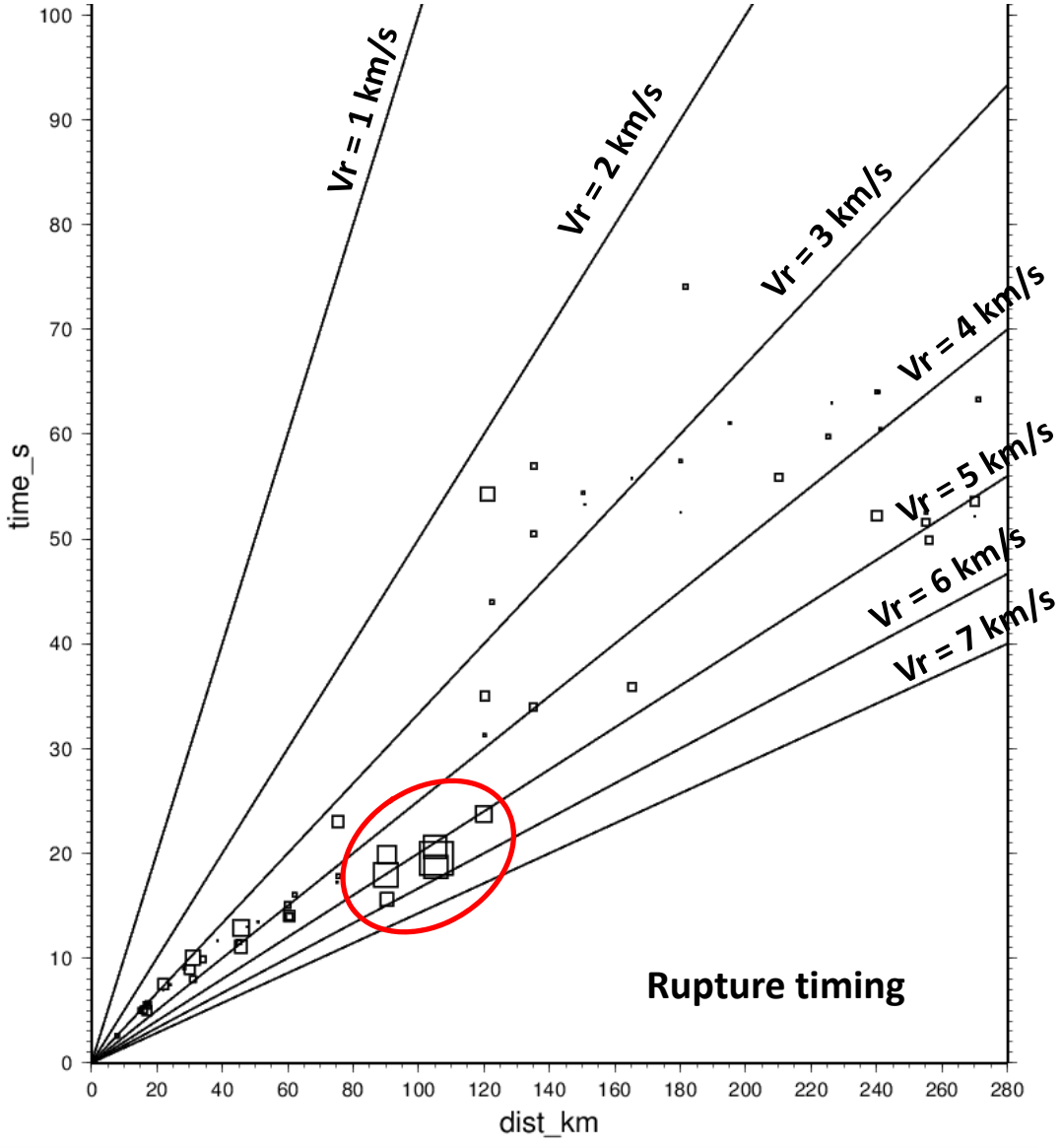
(latitude is adjusted to fall just south of the northern bathymetry scarp, considering that the fault plane is dipping 80° north)

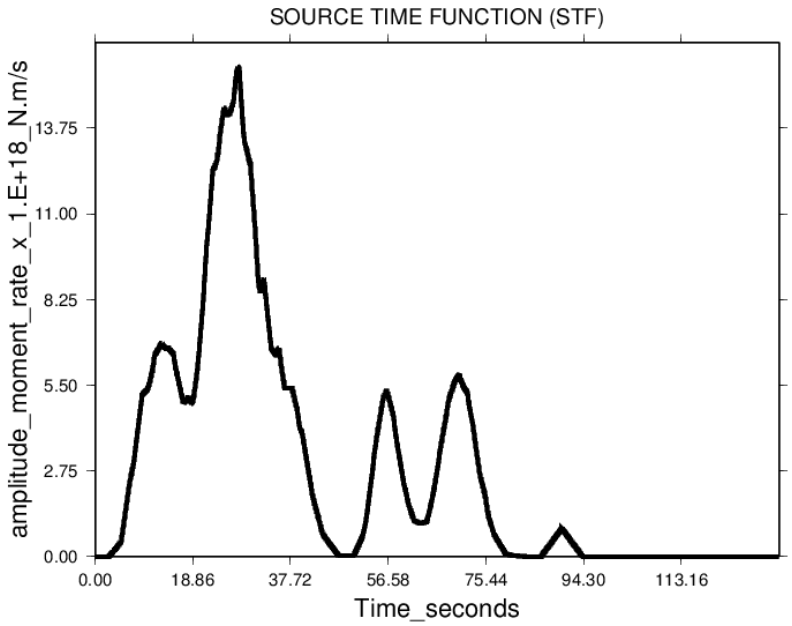


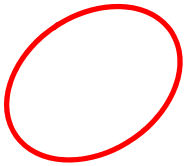
△ : hypocenter

Corresponding Mw: 7.65









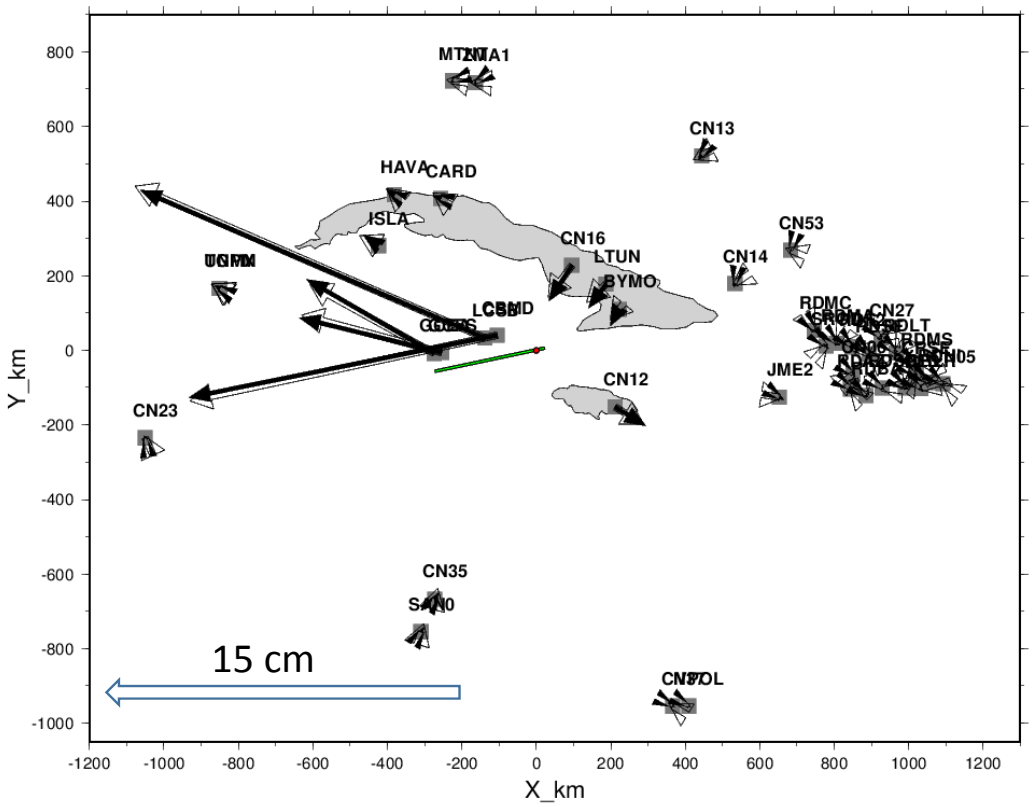
Main asperity

min Vr allowed from the hypocnter: 2 km/s

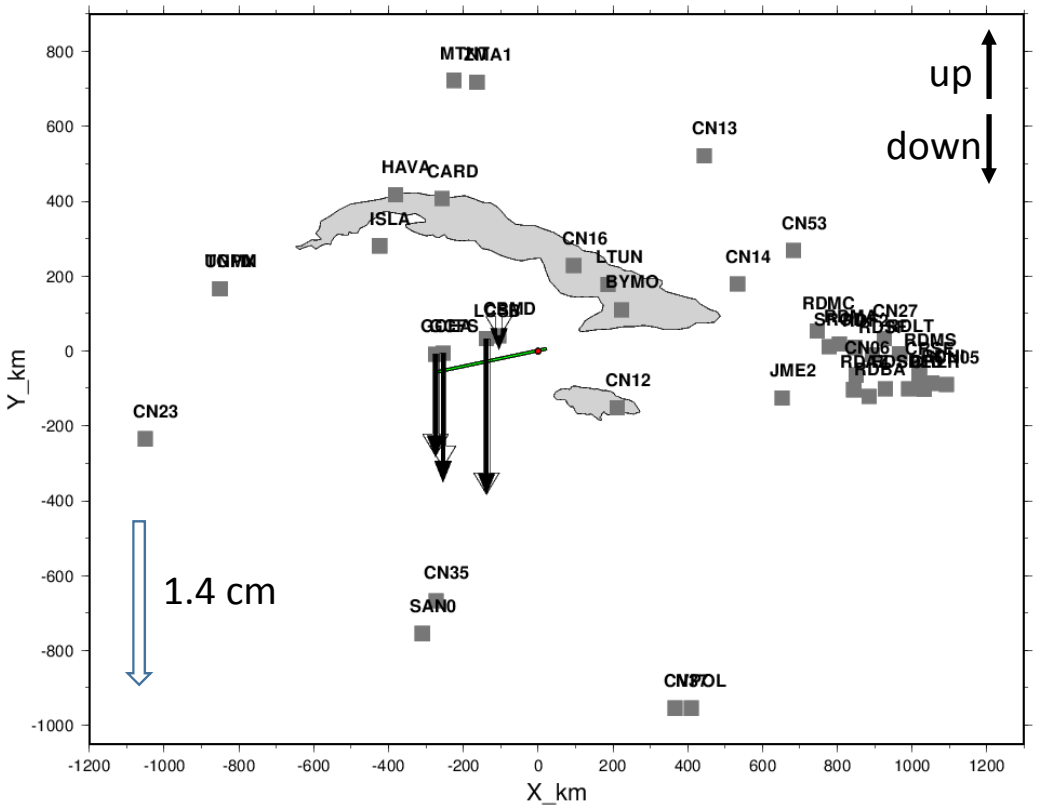
max Vr allowed from the hypocenter: 7 km/s

GPS fitting (with a half space elastic Earth model)

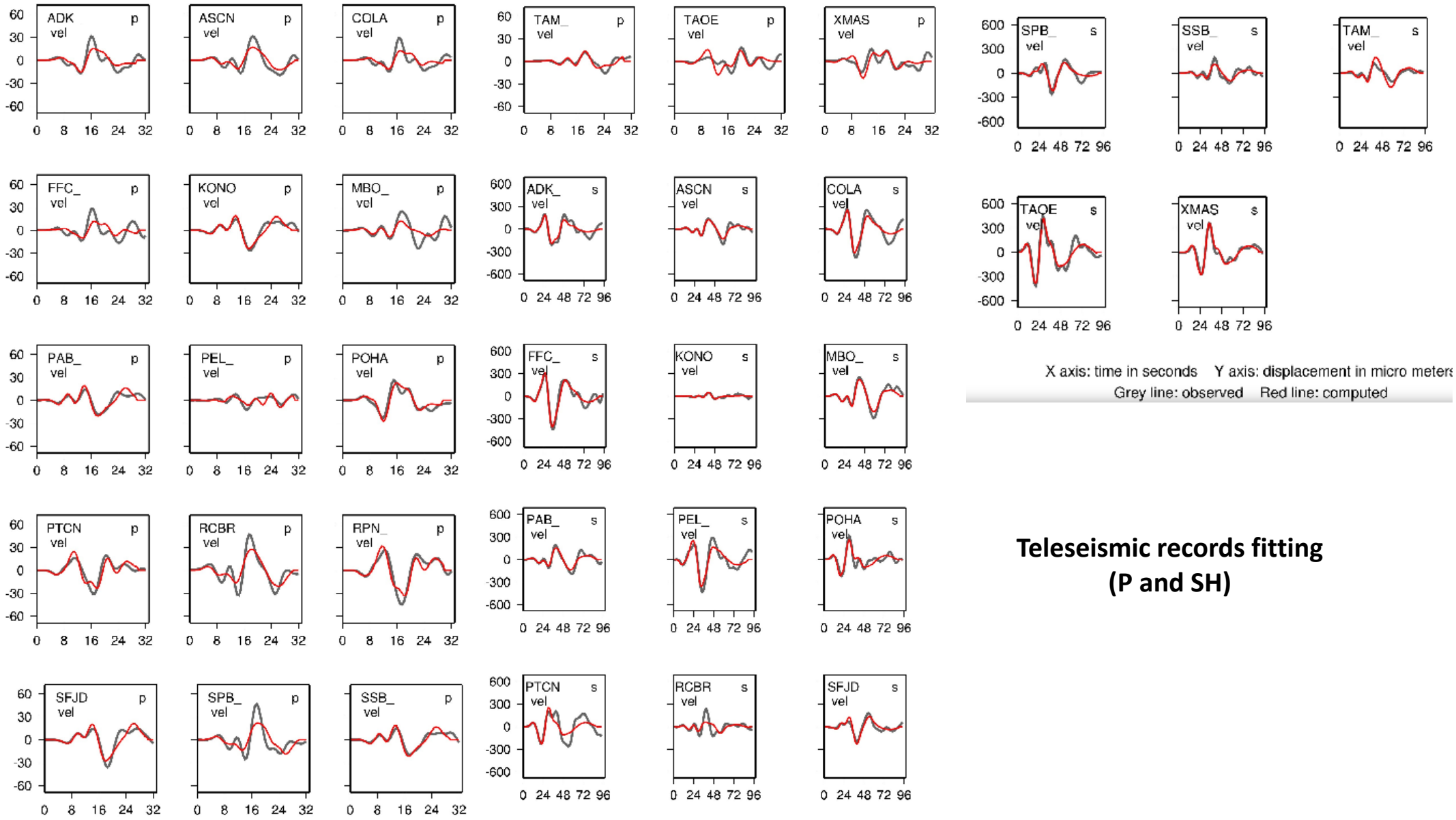
Horizontal



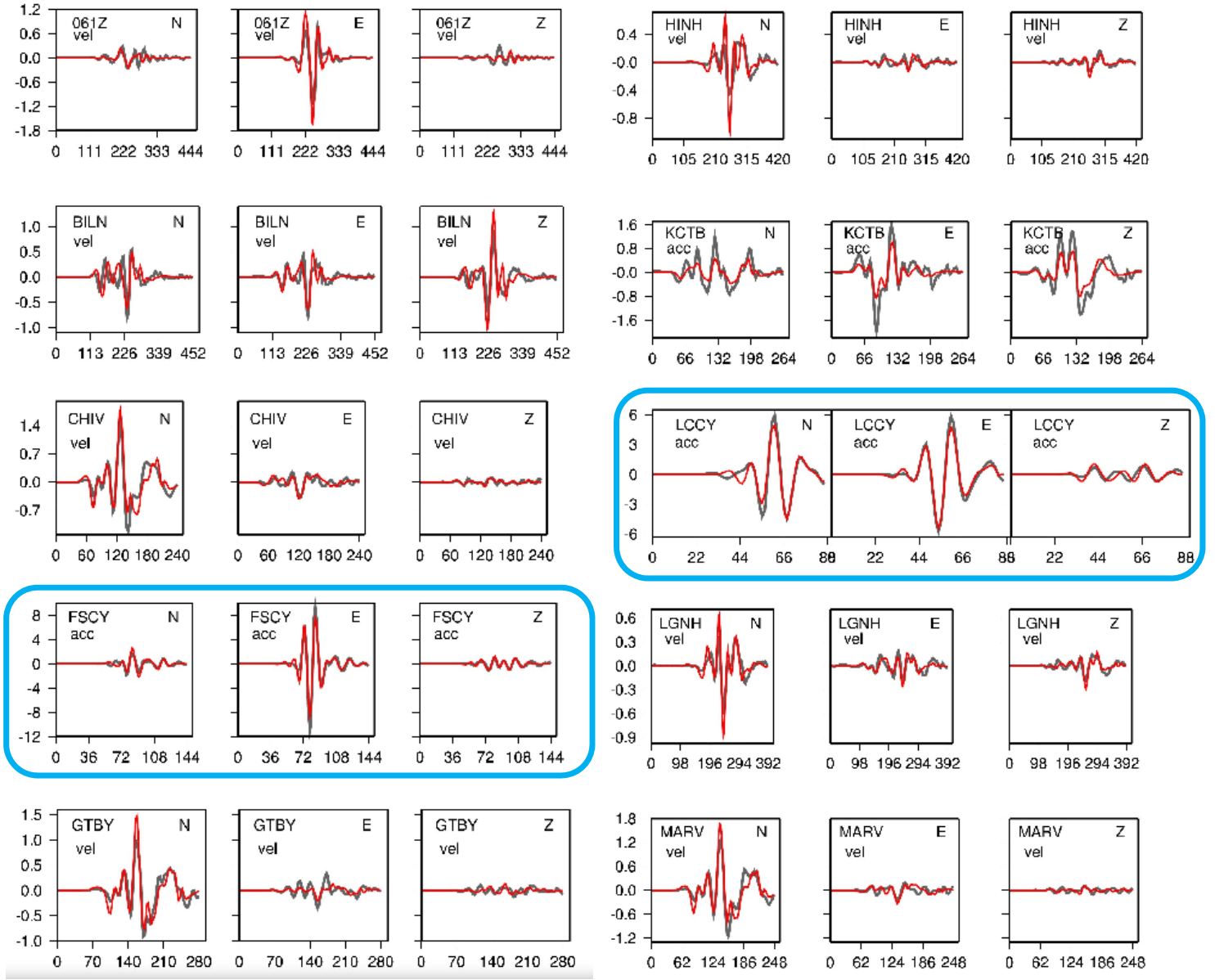
Vertical



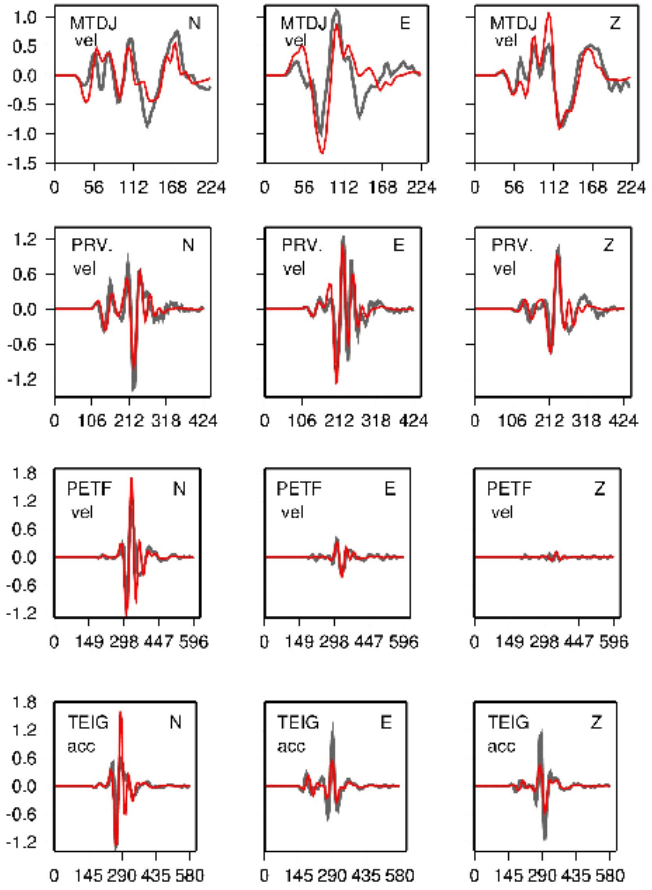
White: observed Black: computed



Teleseismic records fitting (P and SH)

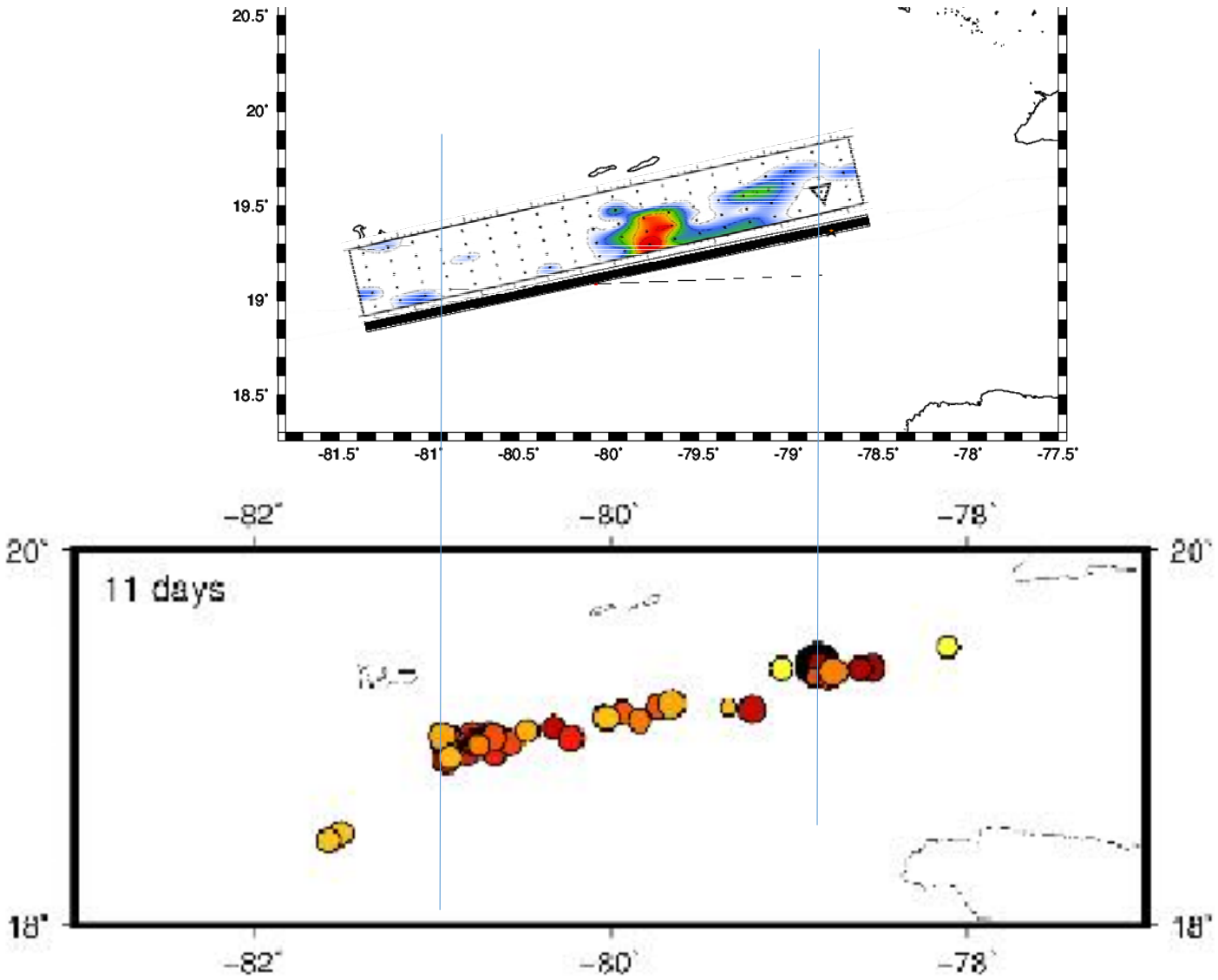


Regional seismic records fitting (full waveform)



X axis: time in seconds Y axis: displacement in cm

Grey line: observed Red line: computed


20.5°
20°
19.5°
19°
18.5°
-81.5°
-81°
-80.5°
-80°
-79.5°
-79°
-78.5°
-78°
-77.5°
-82°
-80°
-78°
20°
18°
11 days

Superposition with about the same scaling