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)
Slip distribution

Corresponding Mw: 7.65

\( \Delta \) : hypocenter

\( \text{slip}[m] \):

- 0.79
- 1.58
- 2.37
- 3.16
- 3.95
- 7.36

km
Rupture timing

Main asperity

min $V_r$ allowed from the hypocenter: 2 km/s
max $V_r$ 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)

Grey line: observed  Red line: computed
Regional seismic records fitting (full waveform)
Superposition with about the same scaling