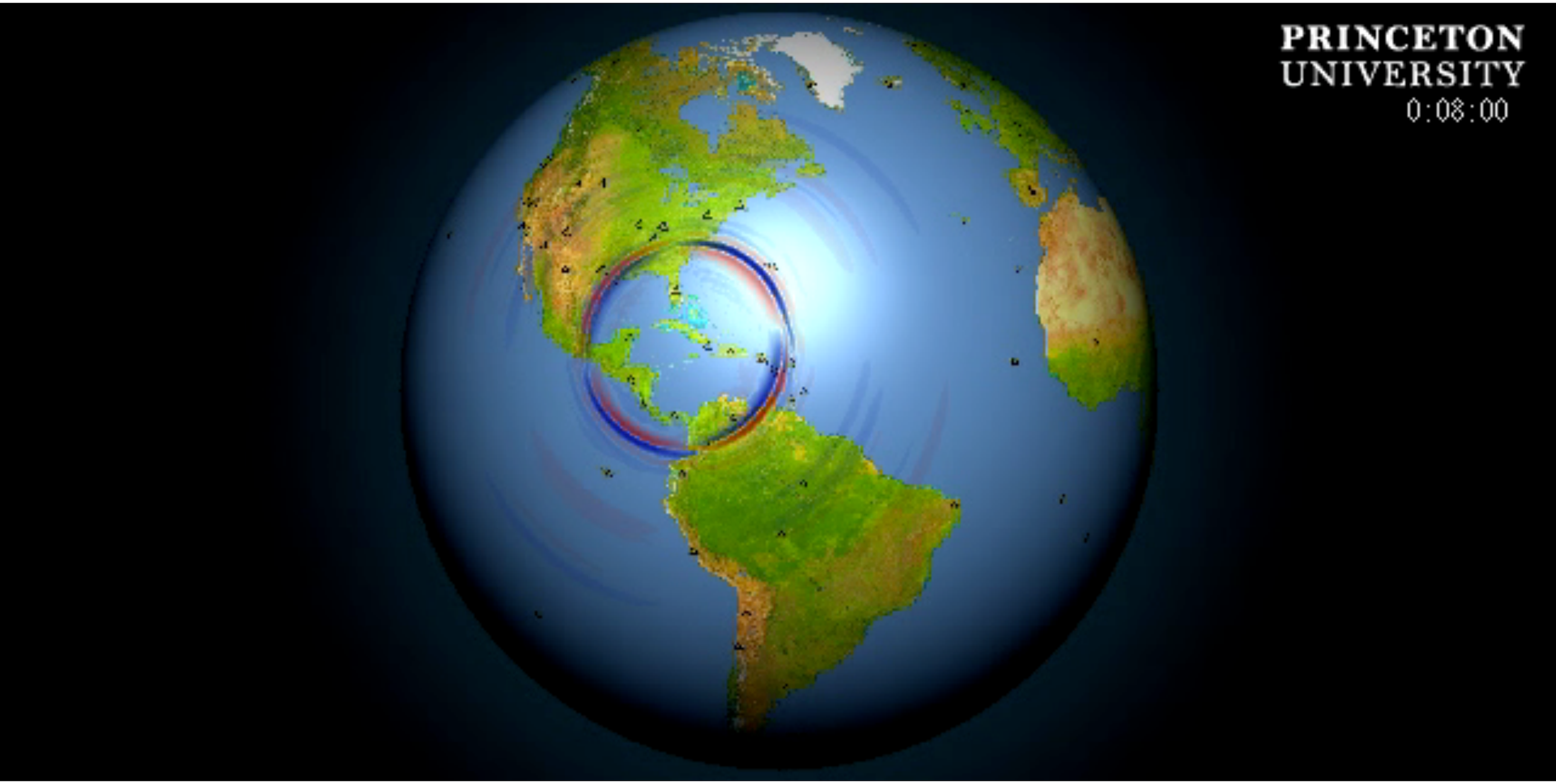
Seismic sources

CUBA REGION Tue Jan 28 2020 19:10:53 utc

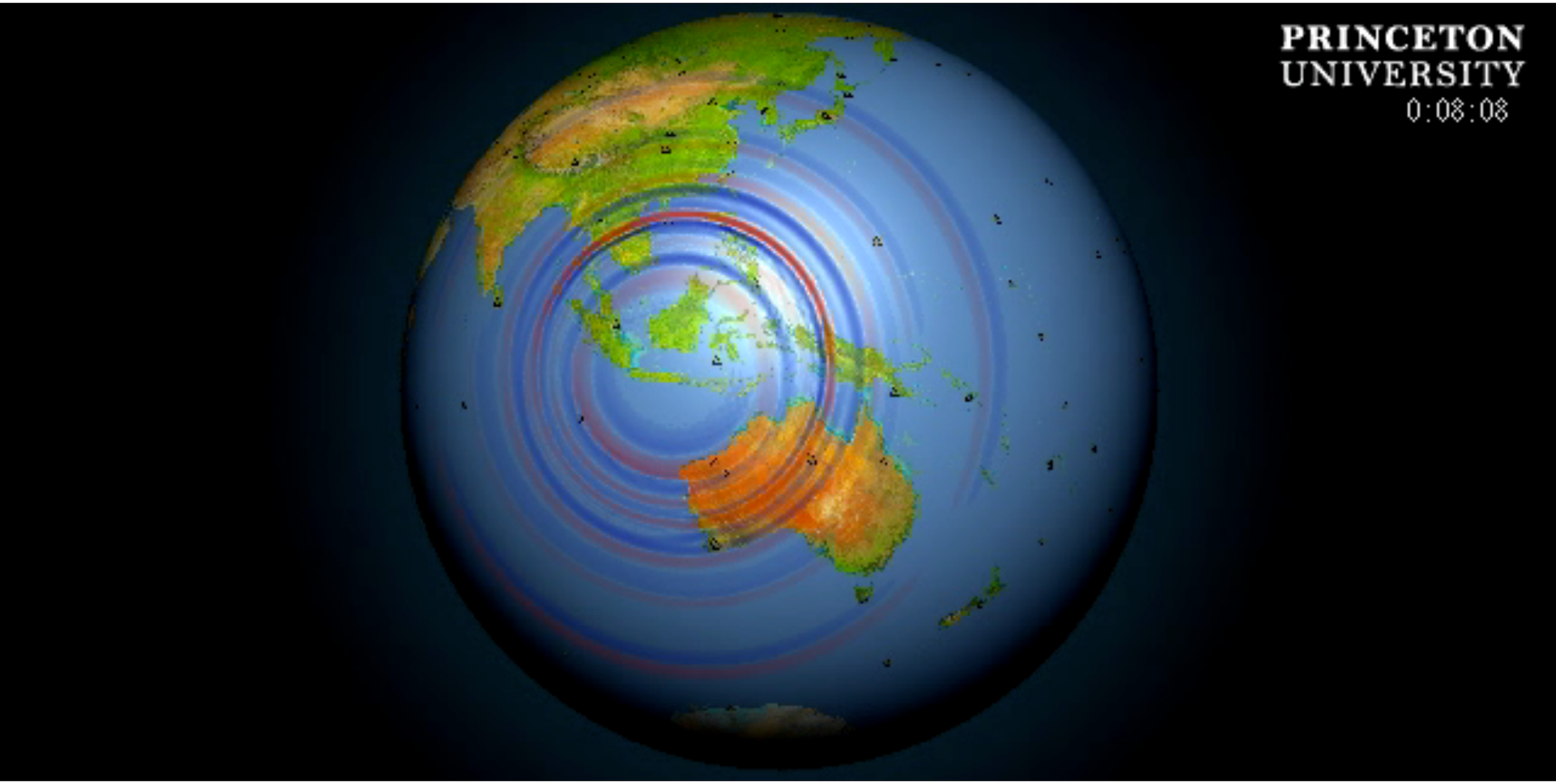
Mw:7.7 *Depth:* **24.5 km**



Seismic waves

JAVA, INDONESIA Wed Feb 05 2020 18:12:37 utc

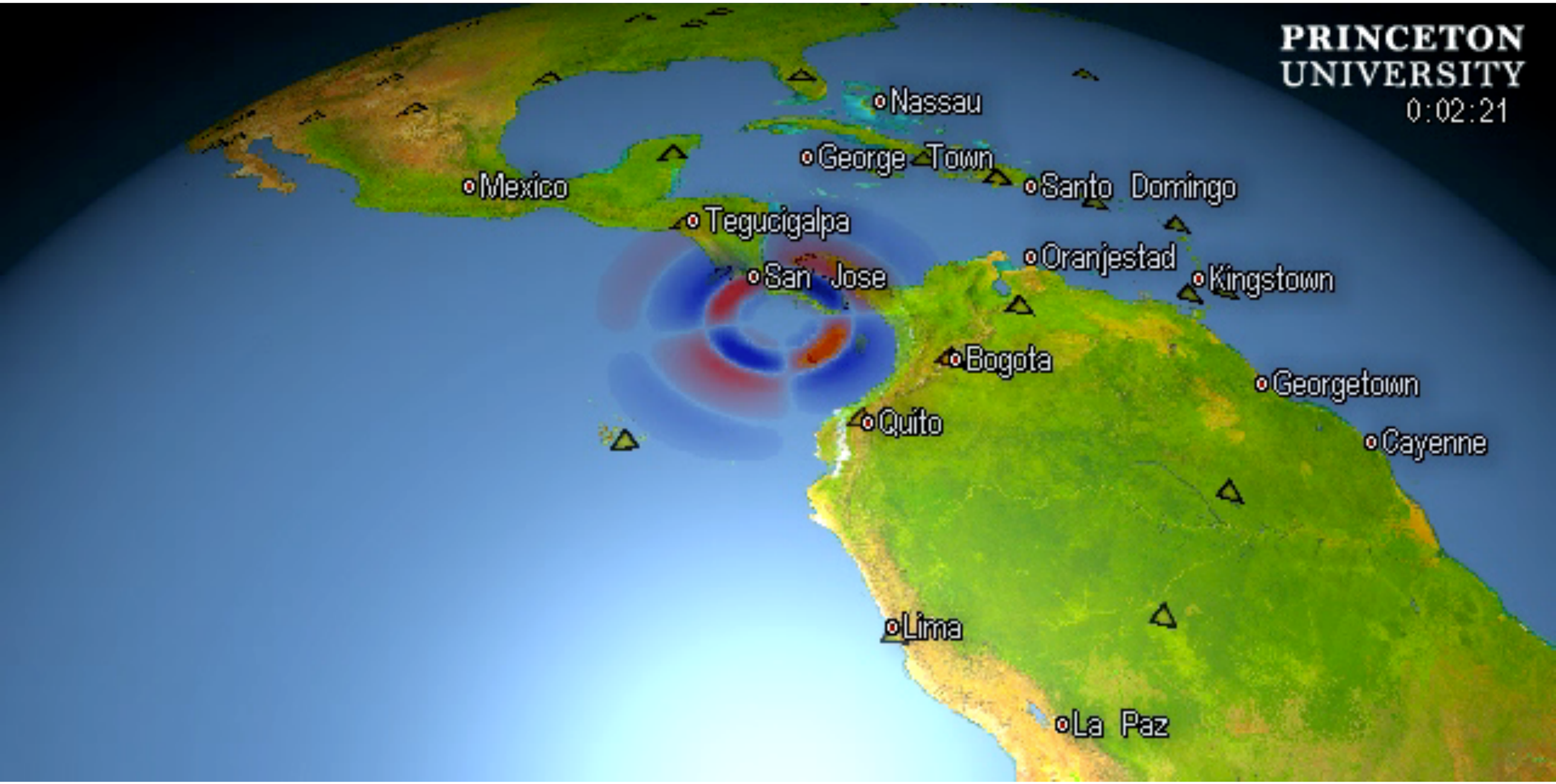
Mw:6.2 *Depth:* **600.6 km**



Seismic waves

SOUTH OF PANAMA Mon Mar 09 2015 02:48:50

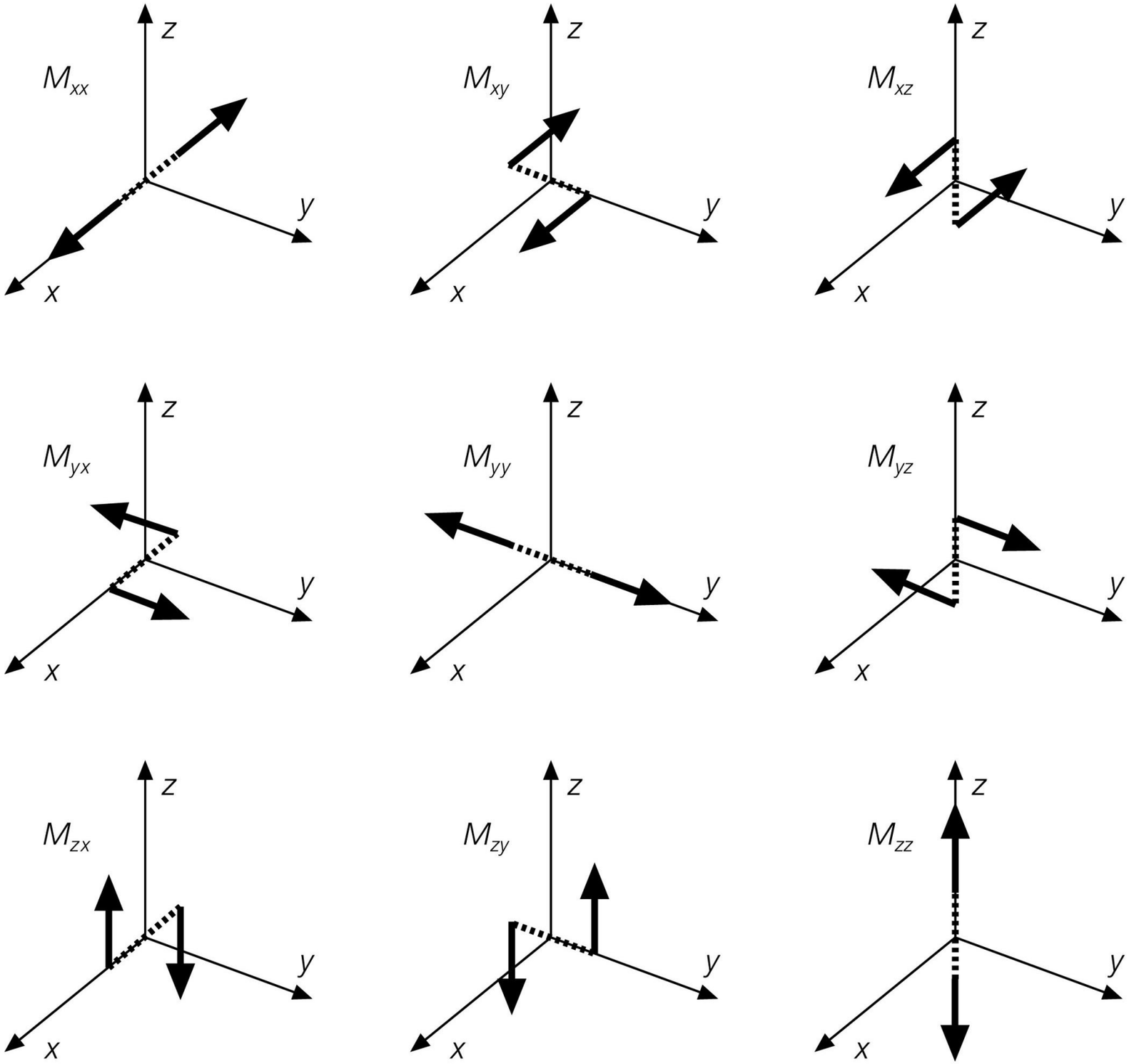
Mw:5.8 *Depth:* **12.0 km**



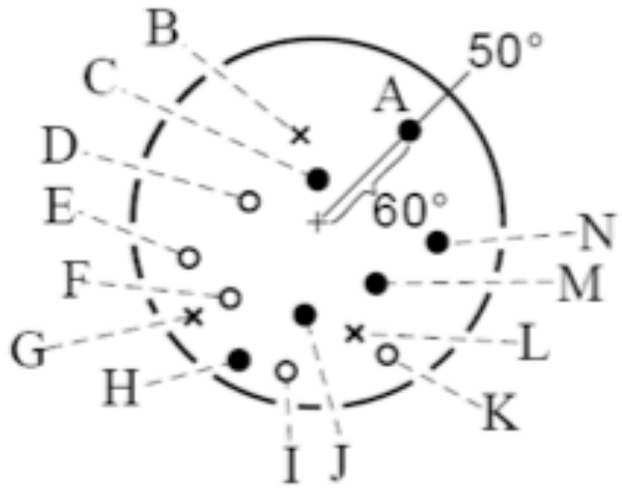
red: up motion, blue: down motion

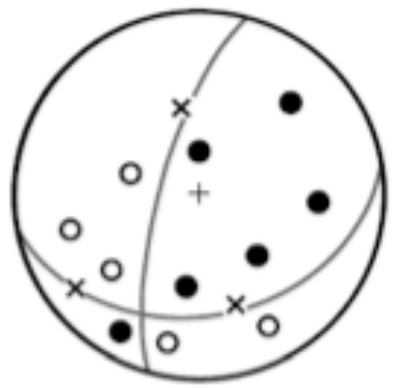
Seismic waves

Figure 4.4-4: Nine force couples which compose the seismic moment tensor.



Stn	P wave	symbol	Stn	P wave	symbol	Stn	P wave	symbol
A		●	F		○	K		○
B		×	G		×	L		×
C		●	H		●	M		●
D		○	I		○	N		●
E		○	J		●			

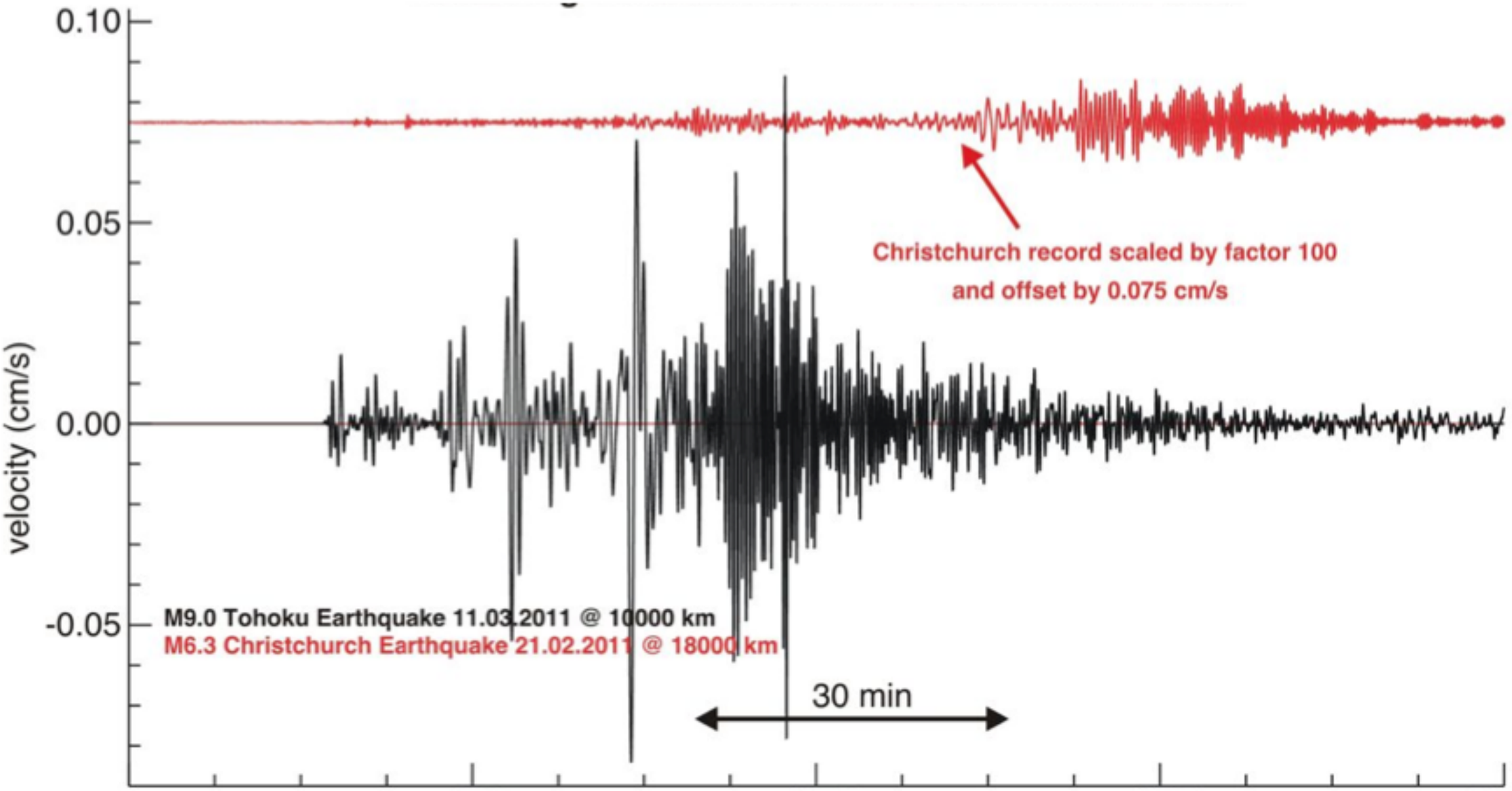




1) Plot all stations with their first motion symbols into the projection.

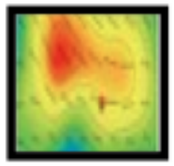
2) Separate symbols with large circles on the hemisphere.

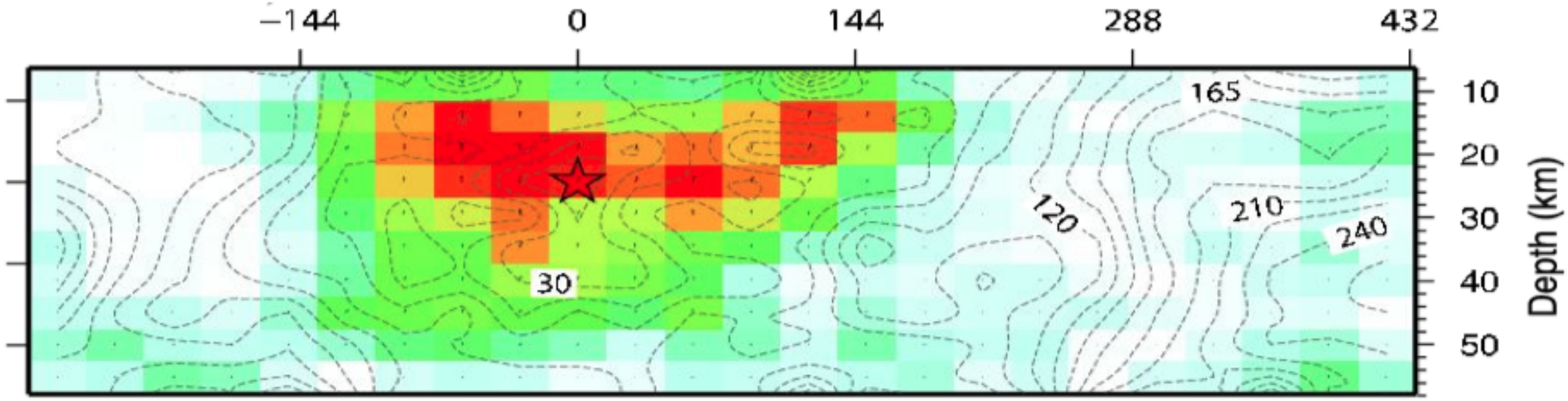
3) Define the focal mechanism.


0.10
0.05
0.00
-0.05
velocity (cm/s)
Christchurch record scaled by factor 100
and offset by 0.075 cm/s
M9.0 Tohoku Earthquake 11.03.2011 @ 10000 km
M6.3 Christchurch Earthquake 21.02.2011 @ 18000 km
30 min

A M9 event releases much more energy - 20 ‘000 more - than a M6.3 event. This depends on the size of the fault and the amount of slip.

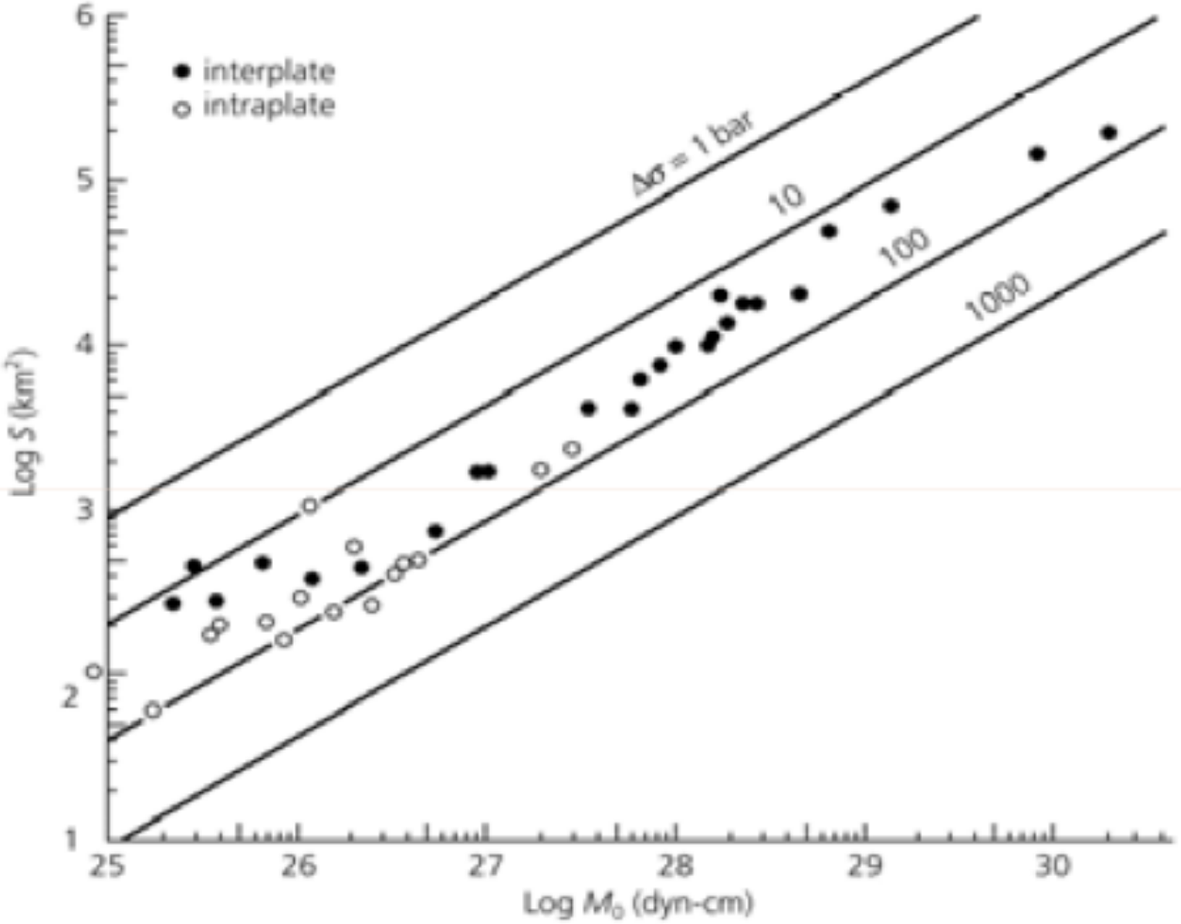
Christchurch: M6.3, slip 1m, source area 30*10km





Tohoku: M9, slip up to 18m, source area 300*40km

"Classic" plot after Kanamori & Anderson, 1975



Modern version using rupture models (Mai, 2007)