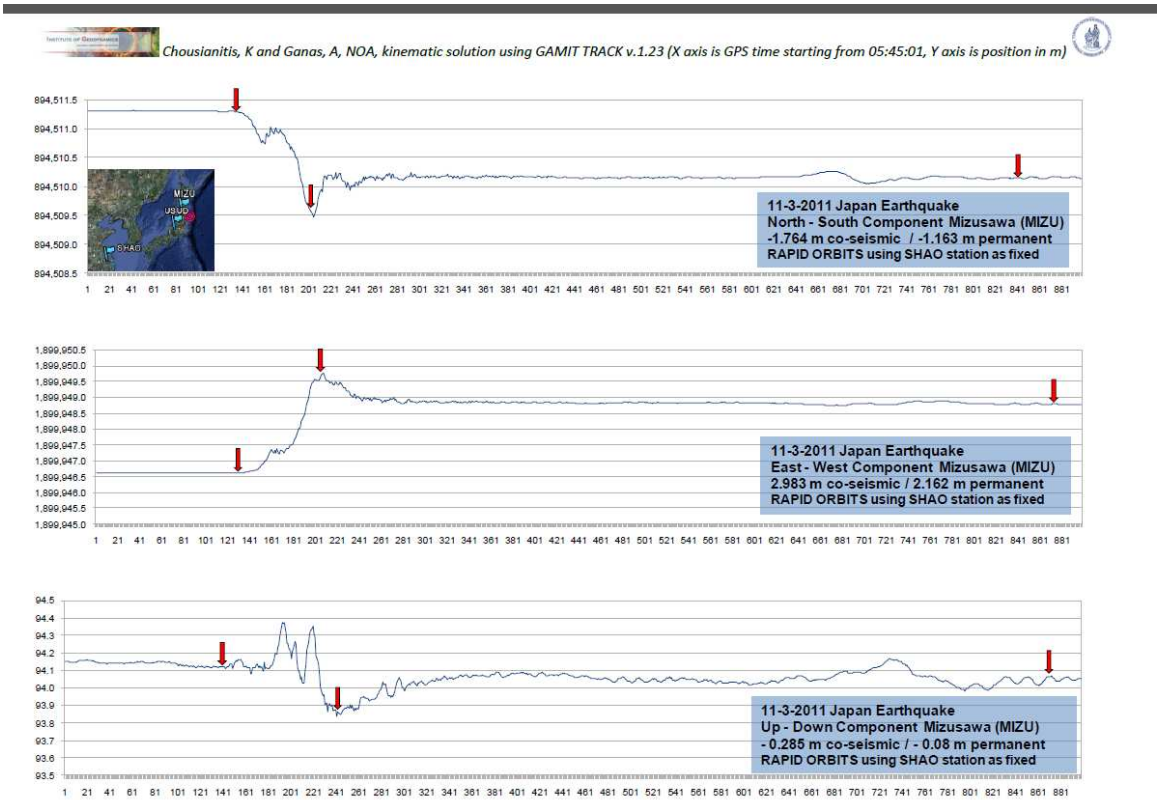
Co-seismic displacements
Kostas Chousianitis and Athanassios Ganas (NOA)

We calculated the co-seismic displacements for two IGS stations on-shore Japan on the time of the M=9.0 earthquake. The method is kinematic GPS solution for a time-interval of 15 minutes and data rate is 1 Hz. Satellite orbital data are taken from IGS (rapid orbits). Station MIZU is about 142 km to the NW of the USGS epicentre. Station USUD is about 431 km to the SW of the USGS epicentre. We used station SHAO (Shanghai), 2087 km to the SW of the epicentre, as fixed. The graphs show position (Y-axis) versus time (X-axis). Time is in seconds starting from 05:45 (hour: minute). Position is North-South (m; top graph), East-West (m; middle graph) and Up-Down (m; bottom graph). The red arrows show antenna positions before – after the passage of the seismic waves. For station MIZU we obtain a dynamic displacement of 1.764 m (southwards), 2.983 m (eastwards) and 0.285 m (downwards). The permanent (static) displacements are 1.163 m, 2.162 m and 0.08 m, respectively. For station USUD we obtain a dynamic displacement of 0.336 m (southwards), 0.622 m (eastwards) and 0.210 m (downwards). The permanent (static) displacements are 0.02 m and 0.135 m, respectively (no vertical position could be measured due to noise). Location of GPS stations is shown on the inset map. Authors: Kostas Chousianitis and Athanassios Ganas, both with Institute of Geodynamics, National Observatory of Athens (aganas@gein.noa.gr)

Station MIZU



Station USUD