



May Tsunami or Earth-quake be detectable by its gravitational field?

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The present gravitational wave detectors are reaching lowest metric deviation fields able to detect galactic and extra-galactic gravitational waves, related to Supernova explosions up to Virgo cluster. The same gravitational wave detector are nevertheless almost able to reveal near field gravitational perturbations due to fast huge mass displacements as the ones occurring during largest Earth-Quake or Tsunami as the last on 26nd December 2004 in Asiatic area. The prompt gravitational near field deformation by the Tsunami may reach the LISA threshold sensitivity within 3000-10000 km distances. Their eventual discover (in LISA or ASTROD future on-line detector arrays) may offer the most rapid warning alarm system on earth. Nevertheless the later continental mass rearrangement and their gravitational field assessment on Earth must induce, for Richter Magnitude 9 Tsunami, a different terrestrial inertia momentum and a different rotation axis, as well as a detectable shrinking of the averaged Earth radius of nearly $\Delta R_{\oplus} \simeq 3.4 \mu\text{m}$. and a consequent faster Earth spinning by a ratio $\frac{\Delta w_{\oplus}}{w_{\oplus}} \simeq -1.08 \cdot 10^{-12}$ and a year duration shortening of the order of $\Delta t_{year} \simeq -34 \mu\text{s}$; if all the energy released is absorbed by the terrestrial rotation energy the opposite would occur, $\frac{\Delta w_{\oplus}}{w_{\oplus}} \simeq 2.59 \cdot 10^{-10}$, with a longer year length: $\Delta t_{year} \simeq 8.17 \cdot 10^{-3}$ s; because the terrestrial gravitational energy is nearly 480 times its rotational one, the mutual energy exchange may in general leads to a spin up or a spin down of the day length within $\mp \Delta t_{day} \simeq 22.4 \cdot 10^{-6}$ s. well within detection.