



## **Lunisolar tidal and tidal load elastic stress tensor components within the Earth's mantle and their influence on earthquake occurrences**

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The relationship of earthquakes with the tidal phenomenon since long is a subject of scientific debates and it cannot be regarded as clarified even today.

For the purpose of theoretical investigation of this problem a set of second order spheroidal Love-Shida numbers ( $h(r)$ ,  $k(r)$ ,  $l(r)$ ) and their radial derivatives were determined for the case of a symmetric, non-rotating, elastic, isotropic (SNREI) Earth with a liquid core. By these means, the stress tensor components from the surface to the core-mantle boundary (CMB) were calculated for the case of zonal, tesseral and sectorial tides.

Since the tidal potential and its derivatives are coordinate dependent and the zonal, tesseral and sectorial tides have different distributions on and within the Earth, the lunisolar stress cannot influence the break-out of every seismological event in the same degree. A correlation between earthquake energy release and the lunisolar effect can exist in some cases where the seismic area is well determined and has either one seismic source or severe similar ones. Particularly in volcanic areas, where the seismic activity is connected to the volcano's activity, or in the case of some aftershock swarms, significant correlation was found by different authors.