Solar induced earthquakes – review and new results

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A lot of information has been accumulated recently demonstrating impacts of solar activity on the Earth's seismicity. We observe the transition from correlation-driven papers to the more physical based works. The effects of solar influence could be separated by agents of energy transfer which could be electromagnetic emission of the Sun, particle fluxes of solar wind, solar proton events, modification of radiation belts and indirect impacts through the intermediate agent, such as atmosphere disturbances and modification of atmosphere circulation as effect of solar activity. Effects of the galactic cosmic rays should be taken into account including the Forbush decreases, which are result of geomagnetic storms. MHD electromagnetic sounding stimulating the earthquake activity could be considered as a physical model of the geomagnetic storms effect on the seismic activity.

The most intriguing effects discovered recently is the inducing the strong M>7 earthquakes by the precipitation from additional radiation belt at L-shell 1.5-1.8 formed after the strong geomagnetic storm. Precipitation of relativistic particles from this shell induces the strong earthquakes with delay nearly 2 months.

One very importing agent of geosphere coupling including the energy transfer int the lithosphere is the Global Electric Circuite.

It is difficult to explain the observed phenomena by simple transformation of solar energy into mechanical deformation, it seems that more plausible explanation is the pumping of energy into the Earth's crust volume being in a metastable state.

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