The ratio of energy released by an earthquake and energy supplied by different kind of suspected triggers (seismic energy from strong earthquakes, electromagnetic energy from a power MHD generator, atmospheric pressure gradients) has been calculated. This ratio happened to be in the range of $10^5$-$10^6$ regardless of a trigger mechanism. For the atmospheric pressure the abovementioned ratio can be attained when the pressure amplitude becomes 10 hPa. We have analyzed atmospheric pressure for all great (with $M>7.5$) earthquakes of the century, and found that maximum pressure gradient occurs 10-15 days before the event. Atmospheric pressure gradient results in spatial crust gradients especially in the range of insular arcs and coastal line of subduction zones where majority of great earthquakes occurs. We have used 3D geomechanical models to test a weak action of suspected pressure gradients, and found that negative gradient leads to elastic energy redistribution which approaches the breaking point of the crust in the source region. Finally, taking into account that the magnetic storms affect atmospheric pressure, we suggest that both magnetic storms and subsequent pressure gradients as a trigger can lead to various effects in the ionosphere, atmosphere and lithosphere which sometimes considered as it were precursors to earthquakes.