# Acoustic model for triggering the straining processes in geomaterials and geomedia during exogeneous actions /hypothesis of "homeopatic"trigger mechanism/

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Searching for a mechanism that can provide a trigger effect on the deformation process of very weak exogenous disturbances (in particular, electromagnetic fields), one can consider the conditions for the occurrence and stability of shear waves in an elastically viscous medium. Very slow waves with a phase velocity less than the velocity of particles under exogenous perturbations are of the greatest importance for explaining this effect. Actually, the phase resonance (known by the Vavilov-Cherenkov effect) can be realized for such slow waves. The conventional theory of elasticity describes seismic or acoustic waves, depending on the frequency range, but their speed is high, and the resonance with weak disturbances is impossible. Those shear waves are also absent in the usual fluid dynamics of continuous media. The presentation shows the new result that desired shear waves may exist for a Maxwell rheological body, in a specific range of wave numbers k. The dispersion relations Omega(k) have been obtained for a system of equations of motion of a continuous medium: the equations of continuity (or incompressibility, in particular), the Navier-Stokes equations and the Maxwell rheological relation. The results are derived for a two-dimensional model. The condition Omega(k)=0 determines the points at which the phase velocity of the waves vanishes. At these points, the system is most susceptible to exogenous impacts. Shear waves, which can be excited due to the energy of external sources, are damped. Therefore, trigger effects can occur only with sufficiently powerful influences, which, nevertheless, are much weaker in comparison with straining processes power. It is worth to highlight that the used model is similar to the well-known Rodionov model describing the deformation of the geological environment in a one-dimensional approximation. The instability is proved to develop even at very small Reynolds numbers, when a shear flow exists in an undisturbed state. This is in accordance with the well-known result on the instability of the laminar flow in the boundary layer. The rationale to apply the obtained results for the straining processes in fault zones has been discussed.