

About nature and role of solar-terrestrial connections in seismic-geodynamics

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Analysis of the state of research on the nature of solar-terrestrial relations (STR) suggests that solar-terrestrial physics is at the search stage [Smolkov, Barkin, 2014, 2016]. The appearance of the registration of global processes and events in all the Earth's shells contributes to understanding and explaining the mechanisms, cyclicity, synchronism, planetary asymmetry, instability of the Earth's daily rotation, geotectonics and other manifestations of solar-terrestrial relations in all internal and external shells of the Earth [Barkin, 2002; Smolkov, Barkin, 2016]. New information comprehended has appeared about endogenous conditions of interaction of the shells of our planet, under which localized igneous melts, fluid systems and mechanical instabilities in discontinuous perturbations often arise. When accumulated to a critical state, they can be eliminated by trigger mechanisms. The detected systemic drift of the Earth's center of mass to the North Pole at a speed of 27 km / year makes it possible to explain polar asymmetry, mass transfer, deformation of the lithospheric envelope of the Earth, changes in its shape, gravity, ocean levels and other planetary phenomena. In manifestations of the endogenous activity of the Earth, the nature of STR is associated not just with gravitational, but with gravitational-thermal convection [Barkin, 2002]. Explanation of the nature of STR from the standpoint of the transformation of the gravitational influence of the gravitational-thermal mechanism on the Earth's shells is based on the well-known ideas about the decisive role of the processes of pulsating degassing and fluid geodynamics in the mantle and lithospheric geosphere [Letnikov, 1996; 2001]. During the formation of the planetary fluid mantle drainage system due to gravitational-thermal transformation of rocks, known geofluidodynamic processes (Rodkin, Rundquist, 2017), appear as a result of high-speed pulsating movement of fluids to the Earth's surface through fault zones, having a modulating effect on seismic activity. The power of the gravitational effects of the Solar system on the lithosphere in the zones of fluid-saturated faults is sufficient for the formation of frictional instabilities that trigger seismic responses of different energy levels. The abrupt manifestations of STR are caused by the impact on the Solar system as a whole from the inhomogeneous interstellar medium. Acceptable explanations of the multifaceted nature of the fixed manifestations of the observed periodicity in seismic and geodynamics are obtained through a systematic study of the STR, taking into account all external factors affecting the Earth.