



New approaches to analysis and forecast of processes in bio-, techno -, and geospheres.

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Defining the role of the gravitational lunar-solar thermal and solar tides in the evolution of the climate and variability of weather described in (Sidorenkov, 2009; Perov, 2012). Periodic influence of astronomical and geodynamic oscillators lead to the corresponding resonances in the biosphere and in various human systems. Safely determined discrete periods (0,5; 1,0; 2; 3-4; 5-8 days and longer) variability of meteorological conditions (weather change, the occurrence of tropical depressions and typhoons, earthquakes, etc.) are clearly seen in the analysis of data of routine observations on a global scale, the relevant archives, cases of exacerbation of chronic and sudden cases of illness, including cardiovascular system (CVS). (Human ecology..., 2008; Atlas of temporal variations of..., 1991, 1998, 2002, 2009). Thermodynamic approach to the analysis of nonequilibrium irreversible open both living and nonliving systems interacting with electromagnetic radiation, is applicable (Chukova, 2009). Obviously this approach to the critical issue of climate shows the failure of the "greenhouse" hypothesis and identifies as the main gravitational factor in its variability. The analysis of the results of the "experiments on themselves" conducted from January 2008 to April 2018 for rapid measurements of blood pressure and heart rate one of the authors (S. Perov, A. Perov, 2012) in various meteorological, geophysical and astronomical conditions (at different degrees of isolation from external factors). Authors used Japanese devices (UA-774, UA-888) of the A&D Company Ltd. Japan. Focused research periods (spectra) in the range "from 0.5 to 1 minute to tens of minutes". The need for such study of its CVS was determined by the unexpected observation of synchronization parameters with periods of oscillations in atmospheric pressure, caused by the existence in the atmosphere and ozonosphere of the so-called internal gravity and other waves of low-intensity ($\sim 0,001$ hPa). Ambulance data of metropolis of Moscow shows to synchronization of extrema of the rate of rotation of the Earth (EERR) lunar-solar tides with the increase in cases of diagnosed diseases and abnormalities of 400 species. Crucial results follow from the correlation of EERR emergency situations in techno sphere and already mentioned in the medical indicators of human health.

Histograms of geomagnetic indices $K_p > 5$, dates of solar flares (X class) coronal mass ejection (CME) are being discussed as well as Wolf's numbers for the period of minimum solar activity (mainly 2008-2009), on the dates of EERR. A significant correlation between them was discovered (Perov at al., 2017). These unexpected and intriguing findings require further testing and explanation of physical mechanisms.

Thus synchronization of processes in geo (atmosphere, ocean, crust and mantle), bio (populations of fauna and flora), socio - and techno-sphere, with the astronomical (including the heliosphere) and geodynamic (Chandler wobble and other oscillations) is one of essential and fundamental phenomena in nature. The results of our synchronization analysis of heliogeophysical data make the audience consider the issue of space weather as well as usual one, its impact on bio-, techno-, socio - and geospheres.