



Seasonal patterns of suicides, cardiovascular deaths and seismic activity at high latitudes and their coupling with the seasonal variation of the geomagnetic activity

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Up to date there are several mechanisms through which the seasonal variation in the geomagnetic activity can be explained. One of them is the Cortie's suggestion on dependence of geomagnetic activity on seasonal variations of the Earth's location with respect to solar equator. The other alternative mechanism, for example, is based on the coupling of seasonal geomagnetic variations with the "effective" B_z component of the interplanetary magnetic field. It was also found that an additional seasonal peak seems to exist in July for the range of the most intense storms ($A_p > 150$ nT) (Gonzalez et al., JGR, V. 98, P. 9215-9231, 1993). No obvious explanation can be used at present for this seasonal peak. On the other hand, the similar seasonal patterns have also been found in human behavior, human health, and even in seismic activity. The aim of the present study is to examine possible seasonal variations of certain parameters relating to human health and human being in the northwest Russia (Kola Peninsula; 67.6 N, 33.3 E). It is shown that: 1) the functional state of fetus demonstrates two significant equinoctial maxima in 15% of cases; 2) in the seasonal variation of suicide there are also two equinoctial peaks and another significant peak in July; 3) the same seasonal patterns exist in cardiovascular mortality, but at lower significance level (socioeconomic factors dominate); 4) rock bursts detected at mines also demonstrate the seasonal pattern coinciding with the semiannual variation of the geomagnetic activity. Some comments concerning mechanisms and causes of seasonal patterns observed are discussed. The work was supported by RFBR grant and by the Regional Scientific

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