



The risk characteristics of solar and geomagnetic activity

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The main aim of this contribution is a deeper analysis of the influence of solar activity which is expected to have an impact on human health, and therefore on mortality, in particular civilization and degenerative diseases. We have constructed the characteristics that represent the risk of solar and geomagnetic activity on human health on the basis of our previous analysis of association between the daily numbers of death on diseases of the nervous system and diseases of the circulatory system and solar and geomagnetic activity in the Czech Republic during the years 1994 – 2013.

We used long period daily time series of numbers of deaths by cause, long period time series of solar activity indices (namely R and F10.7), geomagnetic indices (Kp planetary index, Dst) and ionospheric parameters (foF2 and TEC). The ionospheric parameters were related to the geographic location of the Czech Republic and adjusted for middle geographic latitudes.

The risk characteristics were composed by cluster analysis in time series according to the phases of the solar cycle resp. the seasonal insolation at mid-latitudes or the daily period according to the impact of solar and geomagnetic activity on mortality by cause of death from medical cause groups by death VI. Diseases of the nervous system and IX. Diseases of the circulatory system mortality by 10th Revision of International Classification of Diseases WHO (ICD-10).