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The Impact of Level of Solar Activity on Mortality by Cause in Longtime Period

Katerina Podolska (1,2)

(1) Departement of Demography and Geodemography, Faculty of Science, Charles University in Prague, (2) Institute of Atmospheric Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic (kapo@ufa.cas.cz, +420 272 763 745)

The aim of this presentation is to show the dependence of the intensity of mortality in the Czech Republic, according to the chosen causes of death according to ICD-10, on the solar activity during the increasing and decreasing phase of the solar cycle No.23 in the period 1994-2011. We use the methods of multivariate statistical analysis. The typology of time profiles for the causes of death is identified with the help of cluster analysis using time. The solar activity is represented by the indices R, Kp, F10.7 and Dst, and also by the height of the F2 layer and TEC for the Czech Republic.

There are investigated groups of causes of death according to ICD-10 II. Neoplasms, VI. Diseases of the nervous system, XII. Diseases of the skin and subcutaneous tissue and XVII. Congenital malformations, deformations and chromosomal abnormalities. The correlation between the intensity of mortality from cardiovascular disease e.g. I21 (acute myocardial infarction) and I64 (stroke) and birth defect e.g. Q91 (Edwards' and Pataus' syndrom) and the solar activity parameters is discovered, as well as a stronger dependence on the height of the F2 layer and TEC. We also explored the influence of the above parameters on mortality by causes on degenerative diseases. Typology of time profiles for these causes of death are identified by cluster analysis using time and have found large differences between diagnoses.