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STATE OF GROUND IN WROCŁAW-SWOJEC IN THE YEARS 1881–2010

Key words: air temperature, precipitation, reconstruction, snow cover, state of ground

Summary

In the paper have been done an analysis of variability and meteorological conditions of the state of ground (in the climatologic meaning) observed from the years 1961–2010 in Wrocław-Swojec. The work is mostly based on average monthly values of state of ground which have been calculated from their daily values (noted in the three time-limits: 6 UTC, 12 UTC, 18 UTC or 20 UTC). The strong statistical relationships between state of ground and essential meteorological elements have been educed from the 50-year series of the data. They have been a base for optimal multiply regression equations used to a reconstruction of the state of ground in Wrocław-Swojec from 1881 to 1960. The level of obtained errors of estimation and determination coefficients have been analysed. Apart from the ANOVA standard analysis the equations of regression have been verified by help of the cross-validation procedure. The reconstructed and observed values, which formed the 130-year (1881–2010) series of monthly values of the one, have given possibility to educe their trends. The biggest differences appear among the strong negative trend in the cold hydrological half-year (Nov.–Apr.) and statistical indistinct positive trend in the warm hydrological half-year (May–Oct.). The contrast in 1961–2010 is bigger than in the investigated 130-year. The similar differences of tendencies are visible also between particular months of winter and summer. The crucial factors for state of ground in the summer are climatic water balance, evaporation and frequency of days with precipitation, while frequency of days with snow cover is most important in the winter time.