



Applying of climate change Scenarios of selected meteorological Characteristics for Prognosis of hydrological balance Members at Lowlands

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In the last decade, the global climate change has been observed influencing water regime of various kind of soils too. The main problem is warming of the ground atmospheric layer as a result of accumulation of the greenhouse gases (GHGs) and aerosols (primarily carbon dioxide CO₂) in the atmosphere produced by anthropogenic activity. Increasing of these gasses in the atmosphere causes some change of climatic parameters and components. At present many workplaces in the world are working on the Global Circulation Models (GCMs), which provide climatic scenarios of various climatic parameters. For Slovak territory, the scenarios are testified which are misplaced on outputs of the models CCCM and GISS. The CCCM2000 is GCM introduced by the Canadian Center for Climate Modeling and Analysis, Victoria, British Columbia in 2000. The GISS98 is GCM introduced by the Goddard Institute for Space Studies, New York, U.S.A. in 1998. Both the GCMs are coupled, i. e. atmosphere-ocean circulation models with greenhouse gases and aerosols influence on change of radiation forcing.

The aim of this paper was to determine the possible members of hydrological balance in time horizons 2010, 2030 and 2075 at lowlands localities by simulation in the model GLOBAL with using climatic scenarios GISS98 and CCCM2000 selected meteorological parameters.

The climatic change scenarios were applied for Slovakia. They were created on basin outputs of general circulation models CCCM2000 and GISS98 (Lapin et al, 2001). There are scenarios of monthly temperature changes, monthly precipitation change scenarios (quotients), monthly global radiation change scenarios (quotients), monthly

specific humidity (water vapour) change scenarios (quotients) and monthly wind speed change scenarios (quotients) in 2010, 2030 and 2075 time frames.

New developed scenarios of climatic change were used for creation of daily data sets of selected meteorological parameters. These data sets were used as the inputs to the model GLOBAL for simulation of the soil water content in time horizons 2010, 2030 and 2075. The meteorological inputs consisted of daily precipitation amount, daily temperature averages, daily amount of sunshine duration, daily values of vapour pressure and daily mean wind velocity.

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