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Analysis of detected and projected drought trends in the plain regions of Serbia and Hungary

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The Pannonian or Carpathian Basin is exposed to the risk of both droughts and floods due to its geographic and climatic characteristics. Since both hydrological extremes may result in severe direct and indirect consequences in various sectors, such as agriculture, water resources management, energy production, etc., we started a bilateral research cooperation program between Serbia and Hungary in the framework of the PANNEX initiative, which became a Regional Hydroclimate Project (RHP) of the World Climate Research Programme (WCRP) Global Energy and Water Exchanges Project (GEWEX).
In this paper, we aim to focus on the drought trends of selected subregions within the two neighboring countries. For this purpose we use station data as well as relevant outputs of regional climate model (RCM) simulations. The detected trends are evaluated on the basis of station measurements, and the gridded datasets of CarpatClim (1961-2010). The projected trends are analysed on the basis of RCM simulation data, namely, the outputs of our RegCM simulations (with 10 km horizontal resolution) using two different scenarios for the future until 2100 (i.e. RCP4.5 and RCP8.5). The results of our analysis can serve as key inputs for further impact studies in agriculture or water resources management as well as in the development of specific adaptation strategies at local, regional or even national levels.