

## **Assessing the changes in drought conditions during summer in the Republic of Moldova based on RegCM simulations**

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We assess the changes in drought conditions during summer in the Republic of Moldova based on the Standardized Precipitation Index (SPI) calculated from monthly precipitation data simulated by the regional climatic model RegCM3. The RegCM simulations were conducted at a horizontal resolution of 10 km in the framework of EU-FP6 project – CECILIA. The domain was centred over Romania at 46°N, 25°E and included the Republic of Moldova.

First, we validate the model ability to simulate summer temperature and precipitation over Republic of Moldova. We compare the model simulations forced by ERA40 with the observations from CRU TS2.0 dataset and station observations. The changes in summer temperature and precipitation is analyzed by comparing the model simulations conducted under A1B scenario for the periods 2021-2050 and 2071-2100 with the control run for the period 1961-1990. The SPI (1 to 24-month) calculated for each grid point of Moldova domain in the RegCM simulation was spatially averaged and compared with the corresponding SPI calculated from CRU data. The results show the intensification of summer drought severity due to reduced precipitation in the context of general warming in Moldova. The frequency of medium and long time-scale drought is projected to rise as well as the frequency of severe droughts by the end of 21st century.