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# Energetic Analysis of Severe Precipitation Events Simulated by a Regional Climate Model.

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The purpose of this work is to investigate and to understand the main physical mechanisms responsible for the development of severe precipitation events, simulated by a regional climate model – HIRHAM4,in the Summer of the Northern Hemisphere(JAS – July, August and September), at Central Europe, for the reference and future climates. An energetic analysis is performed based on the study of the different terms of the kinetic energy balance equation, integrated for the mass of atmosphere over the region of interest: the kinetic energy, the local time changes of kinetic energy, the horizontal and vertical transports of kinetic energy, the adiabatic generation of kinetic energy and the conversion rate of available potential energy to kinetic energy, during the occurrence of simulated severe precipitation events. The main conclusion of this work is that all the terms of the kinetic balance equation confirm the presence of a low pressure system acting within the region of interest; the same physical mechanisms compared with the real atmosphere. The major difference lies in the numerical values of the energetic terms: for the future climate, the energetic budget is lower comparing with the reference climate, indicating a decrease of the energy budget of the severe precipitation events, in a warmer and drier climate.