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Hydrological and Energy Budgets in the Alpine Area during present and future climate

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In the recent years the scientific community recognized the importance of the land surface processes as a key component of the climatic system. The correct description of the water content in the soil is important for two reasons. On one hand soil moisture and runoff are the main physical quantities to look at to analyse floods or droughts case studies. On the other hand, soil moisture has also effects on the soil energy balance: as an example, a more abundant water content of the soil makes possible larger values of evaporation, and, as a consequence of this, greater possibilities for convective clouds formation. The soil, as the lower boundary layer for the atmosphere, is a source term for moisture and energy gain in the atmosphere.
The presentation will be focused on a case study about the effects of climate change in the Po Valley and in the Alpine Area, in the framework of a comparison between present climate and the forecast for the end of 21st century in A2 and B2 scenarios. Hydrological and soil-atmosphere energy balance will be analysed.
The methodology used in this study is the run of a Soil-Vegetation-Atmosphere Transfer scheme (SVATs) driven by the output of a climate model. The Climate model chosen for this study is the Reg-CM, while the SVATs is the Land Surface Process Model (LSPM).