



## **Regional impact of meteorological extreme events: climatic causes and socio-economic effects**

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The aim of the work is to understand the dynamics and consequences on the socio-economic system of critical climatic conditions from specific scenarios, derived from daily temperature and precipitation series. In the frame of the RICLIC-WARM project, aimed to develop a scientific methodology to evaluate climatic impacts on water resources of Lombardy Region (Italy), this work is focused on the Po Plain area, one of the most industrialized and populated regions in Europe. The first stage was to provide a robust dataset of 40 weather stations for precipitations, average temperature and frosty days and to define the basic scenario. The results show a systematic increase in winter droughts, a drastic reduction in winter frosty days and an increase in frequency and duration of summer heat waves, culminated in the summer 2003, one of the hottest in Europe. The second stage was to perform the socio-economic analysis, in order to describe the main features and the most relevant drivers of the study area, from a social and economic point of view. As a matter of fact, the extreme climatic phenomena of 2003 gave rise to a number of consequences on the socio-economic system. This part of the study aims to understand which economic sectors have been mostly affected by the extreme drought conditions that characterised that period. The method employed to perform the analysis focused on the cause-effect correlation, where direct effects are the primary consequences of the phenomenon on the socio-economic system, while indirect effects consist in the long-term effects which occur later. The final results will be employed by the Regional Environmental Protection Agency, in the decision-making support system.