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## Analysis of Precipitation Patterns and Extremes in European Lowlands

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It is well-known that climate change affects large scale weather patterns and local extremes all over the world as well as in Europe. These changes include the changes of precipitation occurrences, amounts, and spatial patterns, which may require appropriate risk management actions. For this purpose, the first step is a thorough analysis of possible hazards associated to specific precipitation-related weather phenomena.

The primary goals of this study are (i) to examine the changes in precipitation patterns and extremes, and (ii) to explore the possible connections between changes in different lowlands across Europe. Precipitation time series are used from the E-OBS v.20 datasets on a  $0.1^\circ$  regular grid. Datasets are based on station measurements from Europe and are available from 1950 onward with daily temporal resolution. Altogether 14 plain regions are selected in this study to represent different parts within Europe. More specifically, five plain regions are parts of the East European Plain, two regions are located in the Scandinavian basin, five regions are located in Western Europe, and the Pannonian Plain (including mostly Hungary) is also selected. For choosing the plains and their spatial representations, objective criteria are used, namely, the elevation remains under 200 m throughout the defined area and difference between the neighbouring gridpoints within the plain region does not exceed 40 m. Daily precipitation times series are analyzed and compared for these plain regions using various statistical tools. The results represent annual and seasonal changes in average and extreme precipitation amount as well as in the frequency of precipitation occurrences. Climate indices and the occurrence of extreme weather conditions including wet and dry spells are also analyzed.