Local climate extremes and their linkage to large-scale atmospheric features. Part 2 – Lessons learned when describing convective systems with a statistical methodology

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A classification of atmospheric features is a useful method to generate subsets of days on which to perform further analyses. Based on a methodology that re-defines the concept of patterns, rooted in „configurations" of regression parameters climate analysis and climate change studies were made. There was mixed success with the description of climate features, particularly extremes. The occurrence of, e.g., convective systems with thunderstorms, heavy precipitation and high winds was captured well in the present by the statistical methodology. However, future developments were less well described. Deeper analysis revealed that in those cases the methodology was leaning on the extraction of information from GCM atmospheric fields that those large scale models have difficulties to capture well, such as humidity.

Examples, showing the potential for improvement and a new approach that re-investigates the utility of re-analyses will be presented.