



Quantiles of meteorological parameters and their development in a changed climate – a good practises view

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The incentive for this presentation is the growing importance of information on climate extremes, particularly in the context of adaptation, decision making and climate products.

The analysis of climate extremes requires a re-conceptualization of approaches that are valid for the description of the mean state of the atmosphere. A core aspect is the *degree of extremity*, i.e., the level of scarcity or out-of-the-ordinaryness for which the analysis is carried out. One way of looking at it is to define thresholds to separate the ordinary from the exceptional, such as the maximum temperature surpassing 30°C (hot day) or using other thresholds. Clearly, the comparability is reduced if the analysis area has a complex orography or if different climate regimes are analyzed concerning the frequency of surpassing that threshold. The alternative approach is to use a metric that is adjusted to the individual value ranges that occurs at each station or grid point. This leads to the introduction of quantiles which represent fractions of the value range, e.g., the P95 quantile that separates the *upper 5 percent* of a value range from the *lower 95 percent*. Clearly, the quantiles assume different values of the meteorological parameter, according to the height/location/exposure of a point at which it is determined. On the other hand, they stand for a uniform *degree of extremity*.

The above considerations lead to additional thought and caution when it comes to displaying and interpreting, e.g., areal distributions of extremes, in particular when future developments of extremes are considered. The presentation will focus on the advantages, limitations and pitfalls of evidence in conjunction with extremes, thus providing a further facet in the context of good practises.