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Ort: HS 1 (UZAll, Raum 2A120, Althanstr. 14, 1090 Wien)

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Uncertainty in spatial precipitation analyses, and why climatology should care about it.

Today, most national weather services offer analyses of the spatial distribution of precipitation as an operational climate service. Commonly the analyses are provided on a regular grid, at km-scale spacing, and cover the past 30-plus years at daily resolution. Such data products are widely used for evaluating climate models, for driving runoff models, for estimating extremes, and for deriving regional climate-change scenarios. The underlying rain-gauge networks, however, have limited spatial coverage and the measurements are subject to error. This translates into uncertainties of spatial analyses that may be relevant in applications. This presentation introduces a probabilistic methodology that spawns an ensemble of possible distributions of precipitation rather than a single “best” estimate. Results of the ensemble will be presented for the Alpine region. They provide insight into the magnitude and dependencies of analysis uncertainty. Moreover, they pinpoint to a dangerous pitfall when using traditional grid datasets for the analysis of extremes, for the inference of long-term trends and, likely, for several other applications.