

FROM REGIONAL TO HYDROLOGIC SCALES: RESOLVING SMALL-SCALE VARIABILITY BY STATISTICAL DOWNSCALING

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Small-scale variability of precipitation is (typically) resolved by nested models or statistical downscaling. The latter framework is attractive in ensemble prediction due to its computational efficiency. To that end, over the past few years, considerable evidence supporting scale-invariance in rainfall (space and/or time) has been found, which in turn can be used to develop parsimonious rainfall downscaling schemes. This work deals with the application of downscaling schemes (space and space-time) in resolving small-scale (4km in space and 30-mins to 1-hour in time) variability - useful for hydrologic applications - knowing the large-scale variability from regional model output such as the operational NCEP Eta model forecast fields (at ≈ 80 km in space and 3-6 hours in time). The resulting small-scale fields are then compared with radar observations. The case-study is for forecasts over the continental U.S.