Verification of LAM precipitation prediction by using a stochastic downscaling model

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We explore the reliability of precipitation forecasts produced by limited area models at different scales in space and in time. To this end, we use a stochastic downscaling model (RainFARM) which conserves the structure of the original deterministic prediction above given spatial and temporal reliability scales. We apply this downscaling procedure to selected LAMI forecasts and we generate ensembles of high-resolution stochastic precipitation fields for a sequence of given reliability scales. The statistics of timeseries extracted from these stochastic fields at locations corresponding to a dense regional network of raingauges are compared with direct observations. The methodology is applied to selected precipitation events over a study area covering North-Western Italy.