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Post-processing of ensemble precipitation predictions with extended logistic regression based on hindcasts

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Extended logistic regression is used to calibrate ECMWF EPS precipitation forecasts in a consistent way over the entire distribution (Wilks 2009). The parameters of the post-processing are estimated from hindcasts that are characterized by a much lower number of members (5) than the EPS (51). The parameters have therefore to be corrected for biases. A simple regression correction method is first assessed on the full EPS and sub-samples of varying size. The methodology is then applied on hindcasts. The modified ensembles are verified against raingauge data and compared with direct model output. In addition, the calibrated distributions are also used to modify the ensembles of precipitation traces.