



## **Extending Extended Logistic Regression: Extended vs. Separate vs. Ordered vs. Censored**

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Extended logistic regression is a recent ensemble calibration method that extends logistic regression to provide full continuous probability distribution forecasts. It assumes conditional logistic distributions for the (transformed) predictand and fits these using selected predictand category probabilities. In this study we compare extended logistic regression to the closely related ordered and censored logistic regression models. Ordered logistic regression avoids the logistic distribution assumption but does not yield full probability distribution forecasts, whereas censored regression directly fits the full conditional predictive distributions.

To compare the performance of these and other ensemble post-processing methods we used wind speed and precipitation data from several European locations and ensemble forecasts from the European Centre for Medium-Range Weather Forecasts (ECMWF). Ordered logistic regression performed similarly to extended logistic regression for probability forecasts of discrete categories whereas full predictive distributions were better predicted by censored regression.