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Discrete post-processing of total cloud cover ensemble forecasts

Stephan Hemri (1), Thomas Haiden (2), and Florian Pappenberger (2)

(1) HITS gGmbH, Heidelberg, Germany (stephan.hemri@h-its.org), (2) European Centre for Medium-Range Weather Forecasts, Reading, United Kingdom

This contribution presents an approach to post-process ensemble forecasts for the discrete and bounded weather variable of total cloud cover. Two methods for discrete statistical post-processing of ensemble predictions are tested. The first approach is based on multinomial logistic regression, the second involves a proportional odds logistic regression model. Applying them to total cloud cover raw ensemble forecasts from the European Centre for Medium-Range Weather Forecasts improves forecast skill significantly. Based on station-wise post-processing of raw ensemble total cloud cover forecasts for a global set of 3330 stations over the period from 2007 to early 2014, the more parsimonious proportional odds logistic regression model proved to slightly outperform the multinomial logistic regression model.

Reference Hemri, S., Haiden, T., & Pappenberger, F. (2016). Discrete post-processing of total cloud cover ensemble forecasts. *Monthly Weather Review 144*, 2565–2577.