



Probabilistic 0-6 h forecasts of (severe) thunderstorms in the Netherlands

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The derivation and verification of logistic regression equations for the (conditional) probability of (severe) thunderstorms in the warm half-year (from mid-April to mid-October) in the Netherlands will be presented. For 12 regions of about 90 km x 80 km each, and for projections out to 6 h in advance (with 3-h or 6-h periods), these equations have been derived using model output statistics (MOS). As a source for the predictands, reprocessed lightning data from the Surveillance et d'Alerte Foudre par Interférométrie Radioélectrique (SAFIR) network have been used. The potential predictor dataset not only consisted of the combined (postprocessed) output from two numerical weather prediction (NWP) models, but it contained an ensemble of advected radar and lightning data as well. The NWP model output dataset contained 17 traditional thunderstorm indices, computed from a reforecasting experiment with the High-Resolution Limited-Area Model (HIRLAM), and (postprocessed) output from the European Centre for Medium-Range Weather Forecasts (ECMWF) model. The overall verification results for the MOS (severe) thunderstorm forecast system are good, and, therefore, the system will be made quasi-operational at the Royal Netherlands Meteorological Institute (KNMI) in April 2006. It is expected that the system will help the forecasters to decide whether a weather alarm for severe thunderstorms should be issued.