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What is the uncertainty of weather warnings? Can we predict it? How can this uncertainty estimate be used?

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Weather warnings are still mostly deterministic forecasts. On the face of it we pretend to predict severe weather to happen somewhere in an area with 100 % certainty. Yet verification of warnings reveals that the conditional probability for something severe to happen, given we forecasted it, varies between 90 % and 5%, depending on: the event to be warned, the lead time of the warning, the observational coverage in the area warned and the strictness of the usage of rigid warning criteria. Thus the forecasted probability (100%) and the observed probability of occurrence, given we warned (5-90%), are very far apart.

Yet often we have knowledge about the uncertainty of severe weather forecasts from forecasters experience as well as dynamical and statistical models. Verification results for all 3 methods will be presented for gusts and precipitation. They reveal positive skill in the estimation of uncertainty of severe weather forecasts. The usage of this kind of uncertainty information is currently tested with emergency managers in the city of Berlin. First experiences and results from this experiment will also be presented.