



Singular vectors computed with the ALADIN limited area model - preliminary results

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By perturbing the initial state of a numerical weather prediction (NWP) model it is possible to take into account the impact of the errors in the initial conditions (the fully exact description of the initial state is not achievable due to observation errors, errors in the data assimilation techniques etc). Then the model is integrated from these different initial conditions forming an ensemble of numerical weather predictions. The spread of this ensemble provides valuable information on the predictability of the atmospheric state and on the probability of different weather events which is very useful e.g. for the prediction of severe weather. One possible way to create such an ensemble is to use the singular vector method to perturb the initial conditions of the model. The aim is to find perturbations for a given initial state which grow most rapidly according to the chosen norm (e.g. total energy norm) focusing on a specific area (the optimization area) during a given time interval (optimization time).

Research with singular vectors computed with the ALADIN limited area model has started at the Hungarian Meteorological Service. The final aim is to generate perturbations from the singular vectors, which then will be used to perturb the initial conditions of a limited area ensemble prediction system based on the ALADIN model. An overview about the first results will be given in the presentation.