*Forecasting the weather
- ensemble techniques
in probabilistic weather prediction*

Neural Network and Superensemble Applications for Ensemble Forecasting

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Eliminating or minimizing the errors of weather forecasting caused by initial conditions or model uncertainties in numerical weather prediction models are important issues of recent years. The idea of Ensemble forecasting was suggested for this reason and has been widely used by different techniques in different weather prediction centers. In this study, Neural Network (NN) and Superensemble methods were used to combine the ensemble members by weightings them. Last decades interest in artificial NN has increased because of its potential of solving the many problems. As atmosphere is chaotic and has nonlinear relationships, atmospheric problems are good subjects to solve with NN. Superensemble method weighting the models depending on the multiple linear regression and several studies have been done by Superensemble and also with some preprocess techniques. Using these NN and Superensemble techniques to obtain multi model ensemble forecasts is the main subject of this study.

This study covers the selected stations in Turkey. Data is taken from four different versions of FSUGSM (Florida State University Global Spectral Model) for the period of 1990-2005. Additionally, NCAR/NCEP reanalysis data is used instead of observations in other words desired output. Results of these different systems are compared with bias-corrected average, and performances for two-week average temperature forecasting are presented with different skill scores. In most of the stations we obtain the improvements by NN and Superensemble. Thereby, we present our preliminary results and quantify the improvements.