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Conference on European Tornadoes and Severe Storms

A comparison between subjective and objective thunderstorm forecasts

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We made a comparison between man made 24 hours thunderstorm forecasts (subjective forecasts) and 24 hours pure index thunderstorm forecasts (objective forecasts). The forecasts concern the plane of Friuli-Venezia Giulia region (NE Italy) in summers. Subjective forecasts are based on forecaster interpretation of numerical models outputs and forecaster's experience, while objective forecasts use models outputs and the thunderstorm climatology of our region, combined to obtain two independent indexes. Both these indexes are calculated by a linear combination of meteorological variables extracted from the ECMWF model. In one case the coefficients of the combination were obtained by a linear multiregression over 8 years of data, in the other maximizing the biserial correlation coefficient on a subset of 2 years. To estimate the quality of forecasts we used data collected during 1998 summer; thunderstorm days are defined by lightnings and ground stations observations. The joint probability density functions of forecasts and observations have been used to study the forecasts quality, moreover we studied the Brier Score attributes of subjective forecasts. We found that subjective forecasts skillness and objective forecast skillness are comparable, anyway there are some differences. Subjective forecasts have a low FAR (False Alarm Rate) and they show a good skill to forecast days without thunderstorms, but they haven't an high POD (Probability of Detection). Objective forecasts detect thunderstorm days better than subjective ones, but they haven't the same skill of subjective forecasts in forecasting no thunderstorm days. At the end we tried to combine the

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advantages of the two kinds of forecasts to get a better way to forecast the thunderstorms over our region.