



Results of the Thunderstorm Forecast Verification in Terminal Aerodrome Forecasts in Croatia

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As part of a quality management system, ICAO Annex 3 requires quality assessment of forecasts. For the aviation purpose one of the most important forecasts is the Terminal Aerodrome Forecast (TAF). Thunderstorms (TSs) and related phenomena are considered as a critical event for aviation; therefore accurate forecasts are highly desirable. The data used for the verification are TAF and METAR reports during the period 2009-2012. They contain hourly values of short-range forecasts (9 and 24 hours), and observed reports every half-hour. A method similar to the Austro Control TAF verification system is applied in Croatia Control Ltd.

The month with the maximum frequency of days with TSs at Croatian airports has 12-25% such days. The continental part has a typical maximum of convective activity in spring and summer, while the occurrence at the coast is more uniform throughout the whole year with slightly decreased activity towards the south. Considering TSs in verifying forecast and observed hour each by each, a TS event (in terms of hours) can be regarded as a rare event with a probability of 1-1.5%.

A forecast verification of thunderstorms is presented through several verification indexes. The results show a very low probability thunderstorms that are observed when not forecast. Although unwelcome, a high False Alarm Ratio is inherent to rare events such as TS. The types of weather that have the best and the worst forecast are also examined. Overall results for each airport depend on the daily and seasonal climatological distribution. Better scores are obtained for continental airports where those distributions are more pronounced.

The verification results and system were presented to customers and decision-makers through a regular audit session, which is also part of the quality management system.