



Dynamic – climatological analysis of significant low level clouds at Bratislava airport

K. Krollova

University of Žilina, Slovak Republic, Air Transport Department (krollova@fpedas.utc.sk /
Fax: +420 41 5131517)

According to definition introduced in ICAO Annex 3 - Meteorological Service for International Air Navigation, the significant low level clouds are layered clouds (Stratus and Stratocumulus) in amount of broken or overcast (5-8/8) with cloud base height maximally 1000 ft above ground level. Low level clouds appear predominantly as a component of frontal cloud systems, in which they can extend in horizontal distance of hundreds or thousands km and vertically up to the height of 1 – 2 km. In anticyclones their dimensions achieve small values relatively.

The formation of low level clouds is influenced by the character of an air mass or a front, of which the passage is expected in the particular region, and also by the development of baric field, to which the air mass or front is connected. The creation of low level clouds generally depends on synoptic conditions and their changes caused by the presence of a certain weather type.

The object of the research is processing of statistical analysis of occurrence of significant low level clouds at Bratislava airport. The obtained data are related to 10-year-long period (1997 – 2006). This fulfils the ICAO requirement for processing of aviation climatological information. As a data source the regular aviation meteorological reports (METARs) were taken. Because of data coherence only the terms with the whole hours are considered. By the practical using of gained statistical results the interterritorial comparability plays an important role and it can be ensured by the united method of categorization. In connection with this requirement the dynamic – climatological method was used. The application of this method is based on 28 synoptic weather types which were classified in Central Europe. In several physical delibera-

tions and interpretations it was necessary to consider also the orographic specifications of Bratislava region. Using the calculation of various statistical characteristics and by the applying of the dynamic – climatological method it was possible to achieve a certain model of occurrence of significant low level clouds during the presence of individual weather types. The results are applicable in aviation weather forecasting and it is possible to use them by characterizing of dynamic climate of other airports with similar orographic conditions.