DOI: https://doi.org/10.37162/2618-9631-2020-4-63-77

Low visibility regime at aerodromes in European Russia / Shakina N.P., Skriptunova E.N., Zavialova A.A. // Hydrometeorological Research and Forecasting, 2020, no. 4 (378), pp. 63-77.

The characteristics are presented for the visibility regime at 42 aerodromes in European Russia calculated from the data of aerodrome observations reported in METAR telegrams with 30 minute (more rarely, 1 hour) time intervals. The occurrence frequency distributions of horizontal visibility ≤ 300 m and ≤ 800 m are calculated and analyzed over the period of 2001-2019. The tables are presented and discussed for the annual cycles of the occurrence frequency, as well as for its distributions under different weather phenomena. The occurrence frequency distributions depending on cloud base height, relative humidity, speed and direction of surface wind are presented. The results are also presented for the duration of low visibility episodes: it is demonstrated that such episodes are short, as a rule (for example, the visibility ≤ 300 m is continually observed for not more than 2 hours in 65-85 % of cases). The results of quantification of the correspondence between the occurrence or absence of low visibility and other weather characteristics observed at the same aerodromes demonstrate certain perspectives for developing (at least for several aerodromes) statistical methods to forecast this rather rare phenomenon basing on outputs of numerical atmosphere models.

Keywords: visibility, aerodrome observations, annual cycle of low visibility, relative humidity, cloud base height, weather phenomena

Tab. 4. Fig. 3. Ref. 7.