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A procedure for analyzing global 6-hour precipitation fields is described. The input data are 0–6-hour lead-time forecasts of the SL-AV10 atmosphere model (serving as the first guess) and precipitation observations from weather stations. The analysis includes three stages, with the first guess being successively refined at each step: 1) mid-latitude biases are corrected; 2) relative differences between observed precipitation and the first guess are analyzed for observation clusters (observations within $\sim 1110 \times 1110$ km domains are aggregated); 3) individual observations are assimilated. The optimal interpolation procedure is used, with parameters selected directly in the process of analysis. Precipitation is processed in order to get distribution closer to normal using a power transformation. A verification of the analysis results against observational data and the GPCP and ERA5 analysis fields demonstrates the success of the developed methodology: the precipitation fields are refined at each stage of analysis. The planned application of the analysis is to improve the initial dataset for SL-AV forecasts and to refine the estimate of available soil moisture.

Keywords: global analysis of precipitation, optimal interpolation, SL-AV global atmosphere model

Tab. 3. Fig. 2. Ref. 49.