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Inclusion of ecRad parameterization in the SL-AV atmosphere model and its effect on atmospheric circulation at annual and seasonal timescales / Fadeev R.Yu., Tolstykh M.A., Biryucheva E.O., Goyman G.S. // Hydrometeorological research and forecasts. 2025, no. 3 (397), pp. 49-63.

The results of replacement of shortwave and longwave radiation parameterizations with freely distributed ecRad parametrization in the SL-AV atmosphere model are presented. The effect of this change is evaluated at seasonal and annual time scale. It is shown that the improved and adjusted model reproduces annual mean and seasonal mean precipitation field more accurately, both in integral characteristics and geographical distribution. The errors in the seasonally averaged tropical atmosphere circulation near the surface are reduced. Implementation of ecRad with ecCKD algorithm allows accelerating computations of SL-AV model seasonal forecasts by 17%.

Keywords: atmosphere general circulation model, radiation heat fluxes in the atmosphere, long-range weather forecast

Tab. 1. Fig. 2. Ref. 25.