

Use of Fokker-Plank equation for parameterization of turbulent diffusion of gas-aerosol pollution in atmosphere

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Here are considered the conditions, in which turbulent diffusion of gas-aerosol pollution can be approximated by random Markov process in co-ordinate and velocity space of turbulent mole (random field of accelerations is supposed delta-correlation). There was formulated Fokker-Plank equation for parameterization of turbulent diffusion in co-ordinate and velocity space.

There was obtained functional transformation of Fokker-Plank equation, which allows to make its analysis one of usual equation of turbulent diffusion, for which the turbulent exchange is parameterized with help of well-known gradient approximation.

There were obtained analytical solutions of Fokker-Plank equation for problem on turbulent diffusion of gas-aerosol pollution in atmosphere taking into account the underlying surface influence and also sedimentation, physical-chemical transformation and horizontal transfer of particles. In obtained solutions for the first time there was considered the influence of LaGrange scale of atmosphere vertical turbulence.