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New computational dynamical approach to Earth system modelling: energy and angle momentum balance, teleconnection, atmospheric radiowaveguides

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Abstract content
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The satellite data and data of observing the radio-waveguide parameters (especially in the low troposphere layers) is the informative basis of the modern atmosphere long-term forecasts. As any water quantities in atmosphere are formed on the basis of the cycle- and front-genesis (or in the convective non-stability lines) one can introduce the corresponding model on the basis of the computational thermodynamics and hydro-mechanics of the corresponding processes. We present principally new non-linear computational statistical and dynamical methods of monitoring and modelling the Earth system low-frequency scale processes on the basis of observing some summated contributions of low frequency oscillations for geophysical factors. They base on the energy and angle moment balance relations with stochastic elements and new scheme for calculation of the macro-turbulence regime in typical atmospheric processes, which are known as atmospheric circulation forms [1]. The balance analysis allows to predict the large-scaled atmospheric transformations and teleconnection phenomena and to give their quantitative description. We carried out a series of the PC experiments at the Pacific ocean region in order to study global mechanisms in the atmospheric models and check the seasonal sequences of the conservation (or disbalance) of the Earth atmosphere angle momentum and to provide new predictors for the long-termed and super long-termed forecasts of the low frequency atmospheric processes. The current function (complex velocity) fields are calculated for typical atmospheric circulation's forms. Besides, we have adapted the modified numerical theory of the macro-turbulence for possible using the atmosphere radio-waveguides as a special effective predictors in the long-termed plan.
[1]. Glushkov A.V. etal Water resources in Asia Pasific Region.- Kyoto, Japan .-2003.-P.1355-1358; Nonlinear Proc. in Geophys. 11, 285 (2004); Quart.J.Royal Met..Soc. 132, 447 (2006);

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