



Dynamic factor impact on cloud's creation and raise of aerosoles concentration

Al-Nabelsi Talal (1), Akselevich V.I.(2), Kurbatov S.B.(2), Mamaeva M.A.(2)

(1) Russian State Hydrometeorological University, Saint Petersburg, citizen Jordan

(2) Russian State Hydrometeorological University, Saint Petersburg, Russian Federation

Clouds are one of the interesting nature phenomena. They play the key role in the processes of climate changing. Therefore it is necessary to research their space and time structure and also their physical features. In this case it must be paid special attention to the anthropogenic clouds.

The clouds change the direction and intensity of heat flows and is the “coat” of the Earth, influence on thermal regime of the planet by smoothing its variability. This process impacts on weather conditions and on the climate.

Along with this it is important to compare the similarity of the nature born and anthropogenic clouds. Clarification of the conditions of appearance and evaluation of last one clouds allows to make approach to the regulation of their development using the impact on the separate parameters or the effect of decreasing of the probability of appearance of such clouds or stimulate their development.

Let us choose among the named processes the processes of the creation and destruction of clouds evaluation of the cloud cover. Main characteristics of clouds are the quantity and the form of clouds, height of the upper and lower boarders of cloud layers. In addition we can receive information about several tens of parameters more, which are presented on the poster.

These characteristics are shown in the connection with vertical profile of temperature, wind, humidity...

There revealed in details the approaches to typization of vertical profiles of meteorological parameters. In this case as main feature is used the division by the kind of

profiles, which characterize the change of meteorological parameters with the height in fixed moment of time. Such approach is conditioned by the influence of inverse profile of temperature, aerodynamic wakes and other parameters of physical condition of atmosphere on the character of cloud process. In the report we give a lot of facts material, tables and graphs, which illustrate multiyear self and joint research of the authors.

Water vapour condensation is easier in the locked volumes in the conditions of dynamic flows presence, which mix into “ropes” of aerodynamic wakes after the moving body. In the base of it lay the common phenomena which includes as the variety the cloud traces behind helicopters, condensing traces behind jets, fog and cloud zones behind sea vessels, submarines and islands, aerodynamic wakes behind all moving objects including automobiles. The nature of phenomena as soon as possible may be defined in this way. The “ropes” create the locked volume and wind helps to mix the air masses in all directions.

There presented the calculations of probability of leave and mutual transformation of the groups of cloud forms, and also their consequence with the types of profiles. On the base of the fulfilled research are given the recommendations about the maintenance of comparisons for the various kinds of observations.

Are given large table material. Special attention is paid to the phenomena of “smoked fog”.