

Electrode layer an electric field of powerful convective clouds.
Morozov V. N., Nagorsky P. M. Proceedings MGO. 2015. Vol. 578. P. 7–22.

Examines the theoretical model of the electrode surface layer in the strong electric field in which the main source of absorption of light ions are aerosol particles. For some simplified equations obtained analytical solutions for steady and unsteady models electrode layer, describing the dependence of the concentration of positive and negative light ions on the electric field. The results obtained are confirmed by experimental results.

Keywords: electrode surface layer, electric field, convective clouds

Tabl. 2. Ref. 8.

Investigation of the changes of thunderstorm cloud electrical structure during high atmospheric pollution by aerosols.
Sinkevich A. A., Pawar S. D., Veremei N. E., Dovgaluk Yu. A., Gopalakrishnan V., Mikhailovsky Yu. P., Murugavel P. Proceedings MGO. 2015. Vol. 578. P. 23–46.

There are presented unique data of measurements of electric charges and fields produced by thunderstorm cloud developed in India. In considered day high atmospheric pollution by aerosols was observed. Measurements performed displayed that the cloud had inverted electric polarity (negative charge was situated above the positive one). Numerical simulation of this cloud development was performed using one-and-half-dimensional non-stationary model taking into account electric processes. Two cases were simulated: 1) background aerosol concentration; 2) high atmospheric pollution by aerosols. It was assumed that aerosol particles have ice-forming properties. It was obtained that high aerosol concentration significantly changes dynamical, microphysical and electrical structure of the cloud. Precipitation forming существенно усиливается. Cloud polarity becomes inverted, it is in agree with natural observed data.

Keywords: Cloud, precipitations, charge, electric field, aerosol, ice-formation, polarity

Fig. 7. Ref. 55.

The analysis of glaciogenic particles at artificial impacts on clouds. Kuznetsov A. D., Kryukova S. V., Simakina T. E. Proceedings MGO. 2015. Vol. 578. P. 47–58.

The article deals with the change of air temperature and humidity fields in a cloud when incorporated in it a variety of glaciogenic particles, such as dry ice, liquid nitrogen and propane. The border of the spontaneous nucleation zone around the particles and ice-forming activity of each reagent are defined.

Keywords: artificial cloud modification, glaciogenic particles, dry ice, liquid nitrogen, propane.

Fig. 4. Tab. 2. Ref.10

Hydrometeorological vulnerability of social sphere in the territorial entities of Russia. Kobysheva N. V., Vasilev M. P. Proceedings MGO. 2015. Vol. 578. P. 59–74.

The paper considers the methodology of “World Risk Index” and analyses its application to the assessment of hydrometeorological risk for social sphere in the territorial entities of Russia. The components of social risk are mapped and their trends from the beginning of the 21 century are estimated.

Key words: hydrometeorological risk, vulnerability, susceptibility, coping, adaptation potential, high wind, flood, forest fire

Fig. 7. Tabl.2. Ref.18.

Climate related risks for urban heat supply. Kobysheva N. V., Klueva M. V., Kulagin D. A. Proceedings MGO. 2015. Vol. 578. P. 75–85.

The paper presents identification of climate related risks for various parameters of urban heat supply. They include required heat amount assessment, designing of heat supply model, definition of heating period characteristics, heating quality control. The risks of under- and overheating are discussed.

Key words: climate related risks, risk identification, heat supply receivers, designing, generating capacity, heating period duration.

Fig. 1. Tab. 1. Ref. 4.

ClimPACT software usability for assessment of climate conditions impact on energy generation (in terms of thermal and nuclear power plants operation). Akenteva E. M., Tyusov G. A. Proceedings MGO. 2015. Vol. 578. P. 86–100.

Statistical software ClimPACT was developed by WMO CCI Expert Team on Climate Risk and Sector-specific Climate Indices (ET CRSCI) for objective assessment of climate change and variability impact on public health, water resources, agriculture and energy sector. The paper discusses results of ClimPACT application for impact analysis of changing climate conditions on thermal and nuclear power plants operation in various sections of Russia. The findings can be used in the context of climate risk management in the energy sector.

Key words: climate change, *ClimPACT*, power industry, extreme temperature, dry spell, heat wave, plant capacity factor

Fig. 9. Ref.14.

The research experience in statistical crop productivity modeling based on satellite monitoring information. Galahova Yu. E., Menzhulin G. V. Proceedings MGO. 2015. Vol. 578. P. 101–125.

The paper shows the effectiveness of satellite monitoring data using for designing the statistical models of crop productivity for different beforehand time based on multivariate regression analysis methods, using the technology of direct sorting out the predictors including to the calculations. The results of analysis the properties of such models applied to several selected US and Russian regions are discussed. The paper continues the publications of Russian research group dedicated to the development of forecasting models for crop productivity relative anomalies using the satellite monitoring data as the predictors for regressive multifactor equations.

Key words: anomaly yields, vegetation indices, satellite monitoring.

Tabl. 3. Fig. 2. Ref. 13.

Comparative characteristics of the foreign indices for drought assessment main grain subjects of European Russia. .Zadornova O. I. Proceedings MGO. 2015. Vol. 578. P. 126–139.

We discuss three foreign index to assess the intensity and distribution of drought. The results of comparative analysis of three indicators to assess drought among themselves, which in turn were compared with an estimate of the drought on the hydrothermal coefficient Selyaninov (HTC) used in the DMC NRIAM to assess the severity of droughts. The possibility of the use of these indices to the main grain of the subject of the European part of Russia.

Key words: monitoring, operational monitoring, drought phenomenon, drought indices.

Fig. 3. Tab. 4 Ref.10

Uniform system approach to estimation of the effectiveness of the integrated automated data-measuring system of weather support of aviation and forecast of dangerous hydrometeorological phenomena “CASMETEO”. Tarabukin I. A. Proceedings MGO. 2015. Vol. 578. P. 140–155.

Uniform system approach to estimation of the effectiveness of the integrated automated data-measuring system of weather support of aviation and forecast of dangerous hydrometeorological phenomena “CASMETEO” is formulated. Within the framework of this approach parameters of the effectiveness are determined and the ways of estimation of the system effectiveness are outlined.

Keywords: Estimation of effectiveness, data-measuring systems.

Ref. 11.

Information support for the management of the marine activities in case natural hazards. Chuniaev N. V. Proceedings MGO. 2015. Vol. 578. P. 156–173.

Paper presents methods for automatic detection of natural hazards in information resources of “The Unified system of the information about World ocean” (ESIMO) and early warning for decision-makers of the hazard detection, on their smartphones.

Keywords: natural hazards, hydrometeorological data, critical values, decision support system, ESIMO.

Fig. 5. Tabl. 2. Ref. 9.

Wind characteristics in the free atmosphere of the cosmodrome "Baikonur" Zolotuhina O. I., Gorbatenko V. P., Varenic P. A. Proceedings MGO. 2015. Vol. 578. P. 174–191.

In this paper the analysis of wind direction and wind speed, based on the upper-air sounding of atmosphere was submitted. These characteristics were observed for the Baikonur aerological station during 1995-2014. Variations of average and maximum value of wind speed and wind shear in the layer from earth's surface to 25 km were presented for each month. Researches results were compared with climatic books data for earlier observations (1957-1981). The received information of wind characteristics features in the investigating region can be considered for the space rockets exploitation in this territory.

Key words: wind speed and direction, maximum wind speed, wind shear, free atmosphere.

Fig. 8. Tab. 4 Ref.13.

Assessment of the environmental situation, depending on hydrometeorological conditions at the airport. Mazurov G. I., Tatarnikov V. V., Tomilov A. A., Akcelevich V. I. Proceedings MGO. 2015. Vol. 578. P. 192–222.

According to the results of instrumental observations of the levels of air pollution and soil analysis of these levels depending on various meteorological conditions at the emission of pollutants at the airport of Voronezh. For the first time highlighted areas, where high levels of pollution limit time staff in respirators, and areas, where you can work without them.

Keywords: airport, pollution, playground for preflight training, noise and electromagnetic pollution, chemical pollution of air and soil

Fig. 5. Tabl. 6. Ref. 24.

MGO and year of literature (grandnephew of Fyodor Dostoyevsky in MGO). G. I. Prilipko. Прилипко Г.И. Proceedings MGO. 2015. Vol. 578. P. 223–229.

Here are the facts about working in MGO children of MA Rykachev.

Key words: Rykachev, Dostoyevsky, literature.

Fig. 1.