

On the development of a national platform for climate services as a Russian national component of the GFCS. Bedritsky A. I. Proceedings of MGO. 2020. V. 596. P. 7—36.

The article considers the issues of justification for the creation of a national platform for climate services, its new segments – coordination mechanism of interagency cooperation with consumers of climate products and a unified system of information support for climate activities.

Keywords: climate activities, climate services, climate services platform, coordination mechanism, information system, information support, a unified system of information support for climate activities.

Fig. 7.

The mission of education in the context of climate change. Blinov V. G. Proceedings of MGO. 2020. V. 596. P. 37—54.

The article discusses the role of education in the formation of objective ideas about the impact of climate on all spheres of human activity. It is necessary to create a system of end-to-end education on climate issues and its changes for all walks of life on a single scientific and methodological base. Analytical materials regularly released by Roshydromet can be the basis of the national information database of the global educational information resource on climate change posted on the website of the Roshydromet Climate Center (<http://cc.voeikovmgo.ru/ru/>).

Keywords: climatic activity, the role of education, public awareness, climate center of Roshydromet.

Ref. 15.

Regional monitoring of agroclimatic conditions of crop formation at climate change. Pavlova V. N., Karachenkova A. A., Varcheva S. E. Proceedings of MGO. 2020. Vol. 596. C.55—77.

The authors present the results of monitoring the crop formation conditions carried out using the Climate-Soil-Yield simulation system with current and forecast climate change in the Central and North-Western Federal Districts. The climatic risks of large crop failures were estimated for the period 1999—2018. It was found that the largest climatic risks in the territory under consideration, due to lack of moisture, in the Tambov and Lipetsk regions are 12 %. The largest climatic risk caused by soil re-wetting in the Leningrad Region is 37 %. Analysis is provided for efficiency of use of greater heat resources in crops production.

Key words: climate change, agroclimatic monitoring, water and heat regime, climatic risks, adaptation, crops productivity.

Observations of methane atmospheric concentration and fluxes at Novy Port station (Yamal Peninsula). Ivakhov V. M., Paramonova N. N., Privalov V. I., Karol I. L., Kiselev A. A. Zinchenko A. V., Semenets E. S., Polishchuk V. Yu. Proceedings of MGO. 2020. V. 596. P. 78—95.

The results of observations of methane atmospheric concentration and fluxes near Novyi Port station (Yamal Peninsula) are presented. Regular CH₄ concentration measurements indicate the presence of large regional sources. The excess of methane concentration over the background level reaches its maximum value in winter and equals to 120 ppb over the 5-year period in average. The magnitude of the CH₄ fluxes in the Gulf of Ob littoral zone, as chamber measurements in August 2019 showed, varied from 0 to ~10 mg/m²/h. Such range of values is characteristic of freshwater bodies of the Arctic zone. It was shown that the methane fluxes in shallow waters depend on sea level fluctuations, the daily amplitude of which reaches ~50 cm.

Keywords: methane, atmospheric concentration, fluxes, measurements, Yamal.

Fig. 4. Tab. 2. Ref. 19.

Investigation of the peculiarities of the development of electrification and hail formation processes in a SuperCell cloud by radiophysical means.

Abshaev M. T., Abshaev A. M., Mikhaylovsky Yu. P., Sinkevich A. A., Popov V. B., Adzhiev A. H. Proceedings of MGO. 2020. Vol. 596. P. 96—130.

The development of a SuperCell cloud that existed for more than 20 hours on August 19, 2015 is analyzed. The development of the cloud was accompanied by heavy hail, rain, intense lightning, squally winds and tornadoes. The speed of movement was 60—85 km/h. The Maximum radar reflectivity exceeded 75dBZ, the upper boundary of the cloud reached 15—16 km, the height of the hail hearth-11,2 km. the size of the hail reached 4—6 cm. Cloud-to - ground discharge frequencies of 60—70 min⁻¹ and «cloud-to-cloud» frequencies of 300—500 min⁻¹ were observed. Anomalous values recorded by the satellite "Meteosat-10". The results of regression analysis of controlled parameters are presented. The analysis of Doppler and polarimetric characteristics allowed to identify the area of strong convergence characteristic of tornadoes.

Key words: SuperCell cloud, radar, storm direction finding system, satellite radiometer, lightning, hail, precipitation, tornado.

Fig. 16. Tab.2. Ref. 22.

Electrification Changes within Cumulus due to Airborne Seeding with Glaciogenic Reagent.

Sinkevich A. A., Boe B., Michailovsky Yu. P., Bogdanov E. V. Proceedings of MGO. 2020. V. 596. P. 131—147.

Observations of changes in electrification within cumulus subjected to AgI (glaciogenic) seeding are presented in the article. Electrical state was assessed by lightning frequency, which was derived from radar characteristics of the investigated clouds. Regression equations between lightning frequency and radar characteristics, which were developed earlier in Russia and abroad, were used in this study. An analysis of the data suggests that Cu electrical activity increased due to seeding, as was manifest by the lightning frequency increase.

Keywords: cumulus, glaciogenic reagent, electrical state, lightning frequency, radar characteristics.

Fig. 4. Tab. 1.Ref. 29.

Decameter-guided round-the-world radio waves driven by the ionosphere with a delay independent of frequency. Kalinin Yu. K., Repin A. Yu., Khotenko E. N., Shchelkalin A. V. Proceedings of MGO. 2020. V. 596. P. 148—162.

The features of ionospheric guiding of decameter radio waves are considered. There is the limitation to the case of round-the-world radio signals. The model of trajectories of round-the-world signals is constructed in the form of an effective circle. The special role is played by situations when the propagation of radio waves occurs along the terminator line. The method of effective circular trajectory is used. In this case, the expression for round-the-world signal delay turns into an equation for the radius of the effective circle. The value of the radius does not change much over the entire frequency range of round-the-world signals. The circles are localized near the lower edge of the $F2$ region of the ionosphere.

Keywords: Ionosphere, ionospheric guiding, terminator, decameter radio waves, round-the-world signals, the radio signal delay, the effective trajectory.

Fig. 7. Ref. 13.

The history of the creation of climate reference books of the USSR. Khairullin K. Sh., Obraztsova M. Z. Proceedings of MGO. 2020. V. 596. P. 163—174.

The history of the preparation of climate reference books published in the USSR in the XX century is considered. Data on the number of stations used in compiling the directories is provided. Information is provided on the structure of publications of different years, the tables and characteristics presented in them. The specialists of MGO who carried out the scientific and methodological guidance in the preparation of these directories are listed.

Keywords: climate reference books, creation history, scientific and methodological guidance.

Fig. 5. Tab. 1. Ref. 9.