

Climate change projections over the territory of Russia through the XXI century based on ensembles of CMIP6 models. Kattsov V.M., Pavlova T.V., Govorkova V.A., Meleshko V.P., Sporyshev P.V., Khlebnikova E.I., Shkolnik I.M. Proceedings of MGO. 2022. V. 604. P. 5–54.

Results are analyzed of climate projections over the territory of Russia through the XXI century using ensembles of CMIP6 models. The projections are shown for 3 new scenarios of radiative forcing of the climate system SSP. A comparison is undertaken with CMIP5 projections under RCP scenarios.

In general, the projected climate changes over the territory of Russia obtained from CMIP6 model generation under SSP scenarios are in qualitative agreement with those derived from previous model generations under RCP and SRES scenarios.

Keywords: projected climate change, scenarios of radiative forcing, CMIP6 and CMIP5 climate model ensembles.

Tab. 5. Fig. 24. Ref. 44.

Federal districts: climate change and economy. Shkolnik I.M., Akentyeva E.M., Klueva M.V., Stadnik V.V., Khlebnikova E.I., Faselko D.V., Razova E.N., Rudakova Yu. L., Pavlova V.N. Proceedings of MGO. 2022. V. 604. C.55–201.

An analysis of the observed and projected impacts on the climatic resources of the economy across federal districts is carried out. Description and an overview of the state of things in primary sector and other priority sectors for climate services (the agriculture, health service, water resources, energetics, construction, transport) as well as development challenges in the regional tourism.

Keywords: climate change, federal districts, economy sectors, adaptation.

Fig. 45. Ref. 56.

The impact of climate change on the main sectors of the extractive industry in Russia. Akentyeva E. M. Proceedings of MGO. 2022. V. 604. C. 202–220.

The article analyzes various aspects of the impact of observed and projected changes in the values of basic and tailored climatic characteristics on the infrastructure of the extractive industry. It is noted that the features of the impact of climate change on objects and processes in the mining industry depend mainly on the method of mining (closed, i.e. using wells and mines or open, i.e. quarry), physical and chemical properties of the extracted raw materials and the consequences for the environment. A number of proposals have been formulated to adapt the mining industry to climate change in Russia, reducing both physical (infrastructural) and reputational and social risks.

Keywords: climate change, extractive industry, oil and gas sector, natural hazards, slow onset events related to climate change, adaptation.

Tab. 1. Fig. 10. Ref. 22.

On the impact climate on energy production. Akentyeva E.M., Stadnik V.V., Fasolko D.V., Zadvornyykh V.A. Proceedings of MGO. 2022. V. 604. C. 221–254.

The article discusses the impact of climate change on the production of energy generated at thermal power plants (TPPs) and nuclear power plants (NPPs), on the natural potential of renewable energy sources (RES), on the generation of electricity at renewable energy sources and on the energy transfer through power lines (TL). It is noted that throughout the country by the middle of the century, an increase in the frequency of dry periods and periods with abnormally high temperatures is expected. In this regard, comprehensive adaptation measures are needed to improve the reliability and efficiency of NPPs and TPPs.

Predictive assessments of the resource potential of solar and wind energy have shown that their changes will be mainly regional in nature.

Various climatic factors are analyzed, on which the uninterrupted operation of overhead power lines depends. A number of measures are given that must be taken into account in the design and operation of overhead lines.

Keywords: energy production, renewable energy sources, natural potential, overhead power lines.

Tab. 2. Fig. 7. Ref. 49.