

# CLIMATE CHANGE ON THE EXAMPLE OF GLAZED FROST IN THE TERRITORY OF THE REPUBLIC OF BELARUS

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The article is devoted to ensuring the safety of civil aviation. The influence of ice was considered. The actual meteorological data for 1989–2016 were used and maps of spatial distribution were constructed.

**Keywords:** meteorology, climate, ice, glazed frost, dangerous phenomena, civil aviation.

The glazed frost forms as a result of freezing of atmospheric precipitation falling on a cold surface. More often, ice forms in the south and south-west winds. In cold weather, ice forms near unfrozen ponds. Ice is dangerous for moving vehicles and people, forms ice build-ups on the wires of electric power lines, creates weight and wind loads [1–3]. Considering the spatial distribution of the average annual number of days with ice (Fig. 1), it should be noted that the most frequent occurrence of ice is observed at the meteorological station (Novogrudok – 22.4 days). The minimum indicators were recorded at the meteorological station Klichiv (2.5 days), in the south of the Brest region and in the north-west of Minsk.

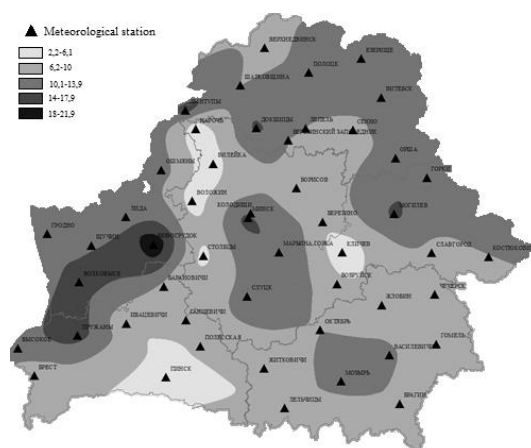


Fig. 1. Spatial distribution of the average annual number of days with glazed frost (1989–2016)



Fig. 2. Chronological course of the average monthly number of days with glazed frost (1989–2016)

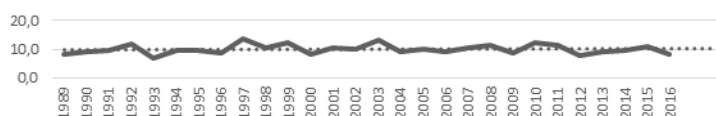


Fig. 3. Chronological course of the average annual number of days with glazed frost (1989–2016)

The maximum number of days with glazed frost is typical for December and is 3.1 days, and the minimum for May and September is 0.001 and 0.004, respectively (Fig. 2). The average monthly indicator was 0.8 days. The maximum number of cases with ice was recorded in 1997 and 2003 and amounted to 13.6 and 13.3 days, respectively (Fig. 3). The minimum indicator is typical for 1993 and 2012 and is 7.1 and 7.7 days, respectively. The average annual rate was 10.0 days. The trend line, drawn on the chart, shows a tendency to small growth. The greatest number of days with ice is observed from November to February, less often in April and September. In the warm period of time, the phenomenon is not observed. The ice greatly degrades the braking ability of the aircraft and the coupling properties of the runway, contributing to pushing the aircraft beyond the runway.

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## GLOBAL CLIMATE CHANGE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT GOALS

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The article is devoted to the evaluation of a human rights-based approach to combating climate change. It is suggested to consider the human right to a healthy environment as a *jus cogens* norm to succeed in addressing global climate change and, in general, achieving sustainable development goals.

**Keywords:** global climate change, sustainable development, the right to a healthy environment.

Climate change poses a global challenge which undermines ecosystems throughout the world. As a result, adverse impacts, such as extreme weather events, rising sea levels as well as floods, water shortages, droughts or desertification are, indeed, real with human-made greenhouse gas emissions being their primary cause (IPCC Fifth Assessment Report). Meanwhile, global climate change has further negative effects preventing persons and communities from full enjoyment of a range of human rights, including those to development and subsistence (namely, water, food, healthcare, shelter).

Combating climate change is a new and ambitious goal which first appears in the 2030 Agenda for Sustainable Development (hereinafter the Agenda). Apart from the indicated goal, the Agenda sets targets in economic and social spheres, thereby introducing the concept of achieving sustainable development in its three dimensions – economic, social and environmental – in a balanced and integrated manner (para. 2). However, a difficult question arises when it comes to compatibility of sustainable development goals: how can the goals of ending poverty, hunger and promoting economic growth be compatible with the need to take urgent actions on climate change requiring sufficient financial resources and restrictions on greenhouse gas emissions?

The XXI century climate change is a major threat to human rights, which therefore makes it necessary to advance a global human rights-based response. According to para. 8 of the Agenda, it is important to ensure the universal respect for human rights and the full realization of human potential. However, climate change mitigation measures should be directed at cutting greenhouse gas emissions immediately. At the same time, the right to development implies the right to emit greenhouse gas for the purpose of assuring the long-term fulfilment of human rights in developing and the least developed countries [Humphreys, 2011. Human rights and climate change. Cambridge: Cambridge University Press, p.15]. Thus, the problem is that the appropriate legal framework is needed, within which both affected human rights to subsistence and development are equally realized in the context of combating global climate change.

As for the right to development, it is reflected in the numerous international legal instruments of a binding and non-binding character. At a minimum, the latter include the aforementioned Agenda that recognizes the need to build societies based on respect for human rights (*including the right to development*) (para. 35 of the Agenda) and the Declaration on the Right to Development which declares it as an inalienable human right (art. 1). Notably, it is in line with the States' right to promote development under art. 3 of the UNFCCC and supported by the right of all peoples to freely dispose of their natural wealth and resources guaranteed by art. 1 of the ICCPR and ICESCR.

The rights to water, food, healthcare and shelter are covered by the ICESCR. Particularly, while the rights to food, healthcare and shelter are explicitly reaffirmed in the Covenant mentioned (art. 11, 12), the human right to water is derived from the right to an adequate standard of living (art. 11) and that to the highest attainable standard of health (art. 12) according to the General Comment No. 15 (para. 3). Moreover, in its 2010 resolution (A/HRC/RES/15/9) the UN Human Rights Council confirmed that the right to water is part of existing international law and is legally binding upon States.

The rights-based approach to addressing climate change is a multifaceted problem that cannot be tackled without having to prioritize the analyzed human rights. A possible solution may be found in the principle of common, but differentiated responsibilities entrenched in a number of climate change agreements. Humphreys' analysis of these international legal documents shows that the major factors to be taken into account while allocating financial burdens are responsibility, need and capacity [Humphreys 2011, p. 120]. Even so, none has been efficient so far and the recent example refers to the U.S. withdrawal from the Paris Agreement. This means that to