

Pyasetska S.I.*Borys Sreznevsky Central Geophysical Observatory, Kyiv, Ukraine. E-mail: spyasets@ukr.net***SPACE-TIME DISTRIBUTION OF THE GREATEST MASS CASES OF WET SNOW DEPOSITS DURING 1991-2020**

Falling of wet snow and its subsequent sticking with the formation of appropriate deposits is a typical phenomenon for the territory of Ukraine. Sleet deposits are one of the types of ice-frost deposits, which are mostly formed from mid-autumn to October, but reach their maximum development in the winter months. They are observed in April, but not every year and only in certain regions. It should be noted that this type of ice-frost deposits is quite dangerous for a number of branches of the economy, and first of all for objects of energy and its transportation, communication, transport and communal sphere. In agricultural production, a layer of wet snow prevents the access of air to winter crops, which leads to the accumulation of carbon dioxide and its evaporation. It should be noted that this type of ice-frost deposits is quite dangerous for a number of branches of the economy, and first of all for objects of energy and its transportation, communication, transport and communal sphere. In agricultural production, a layer of wet snow prevents the access of air to winter crops, which leads to the accumulation of carbon dioxide and its evaporation. Deposits of wet snow that spread over a large area covering several regions are particularly dangerous. It is known that recently, after a certain period of stabilization of the air temperature in the global climate system, its growth has been observed. This is especially noticeable in Europe, which leads to the frequent passage of cyclones with warm fronts and occlusion fronts, which contributes to intensive precipitation of sleet, supercooled precipitation in the form of freezing rain and thaws. All this is the result of climate change due to the increase in air temperature in the global climate system "ocean-atmosphere" and the increase in a number of adverse weather phenomena, which include ice and frost deposits.

Many scientists in the world community are engaged in the study of climate change and adaptation to new realities. The results of research on this issue have been published in IPCC reports [4-6], resolutions of international intergovernmental commissions on climate change, and National Adaptation Programs. In Ukraine, similar studies on climate change and its possible consequences were conducted by V.M. Voloshchuk [1, 2]. His research was based on the semi-empirical model he created for paleo-reconstructions of past climatic eras, which was used to predict the further development of the climate system taking into account its current stat. The obtained results, regarding the increase in the average air temperature and the increase in the number of dangerous weather phenomena, practically coincided with the assessment of international experts. Significant results from the study of climate changes, and as a result, an increase in the frequency of recurrence of certain weather phenomena, are presented in monographs devoted to the climate of Ukraine, published in the early 2000s [3, 8]. The author [7] established a sharp increase in air temperature during 1991-2020 compared to the previous climatological norm of 19961-1990. This indicates the continued probability of the occurrence of favorable conditions for the formation of various types of ice-frost deposits, including wet snow deposits, which are second only to ice deposits in terms of the possibility of their creating a danger for the branches of the economy.

In general, the cases of mass spreading of wet snow deposits on the wires of the ice machine, which would have been observed on 1 date at least in the territory of 2 oblasts, were selected for the study. However, in the presented results, similar cases from 8 regions and more were analyzed for better visualization. In Figure 1, for example, cases of mass deposits of wet snow, which were observed in the territory 10 and more, are presented in the form of maps.

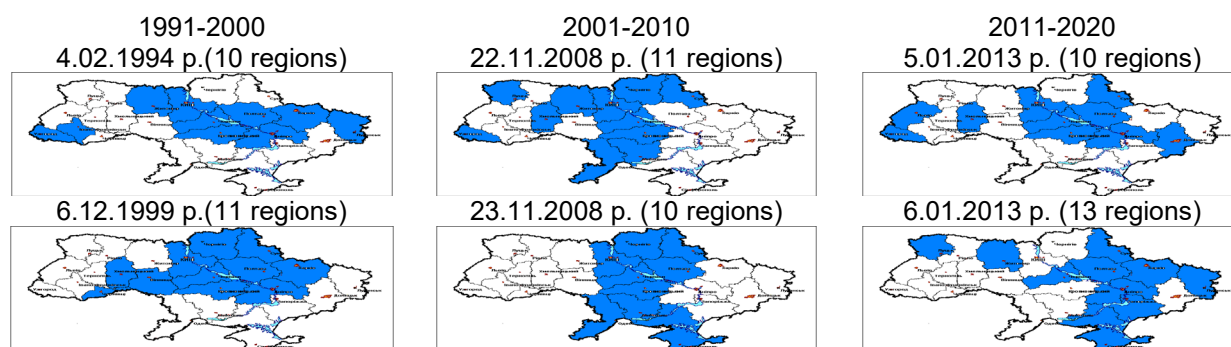




Fig. 1. Cases of the largest mass deposits of wet snow in individual months and years during individual decades of the period 1991-2020

It was established that the largest cases of mass deposits of wet snow in terms of distribution were mainly detected in the second and third decades of the general period 1991-2020. They mostly cover the northern regions from west to east from Zhytomyr Region (sometimes even Volyn) to Chernihiv Region, Sumy Region and Kharkiv Region. and are also combined with separate regions of the central region, mostly Cherkasy, Kirovohrad, Poltava and Dnipropetrovsk regions. Sometimes such a range was expanded at the expense of Vinnytsia and. In some cases, the most large-scale, deposits of wet snow can be observed in 1 date in the territory from the western regions to the northern, northeastern, eastern, central and even some of the southern regions (Odesa). Cases of mass spreading of wet snow deposits in the south mostly cover the Mykolaiv, Kherson, Zaporizhia regions and Crimean Autonomous Republic. In some cases, they can also be observed in Odesa in the west and Donetsk in the east. There have been cases when wet snow deposits with their mass distribution were observed only on the territory of the western regions from Transcarpathia in the west to Volyn, Rivne region and Zhytomyr region in the north and to Khmelnytskyi (sometimes Vinnytsia) in the east. It should be noted separately that on the territory of Ivano-Frankivsk Region, deposits of wet snow in cases of their mass distribution are not often observed compared to other western regions. It should also be said that there are cases of massive distribution of wet snow deposits, the areas of which are located submeridionally from north to south, or sublatitudinally from west to east through the center of the country. The most common cases of wet snow deposits were observed on 16.03.2000, 20.12.2004, 16.01.2009, 28.12.2009, 12.02.2011, 21.01.2012, 06.01.2013, 17.03. 2014, 05.02.2020.

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