Ministry of ecology and natural resources of The Republic Of Kazakhstan Republican State Enterprise «Kazhydromet»

MONTHLY BULLETIN
ANOMALIES OF MEAN MONTHLY AIR
TEMPERATURE AND MONTHLY PRECIPITATION
ON THE TERRITORY OF KAZAKHSTAN
IN NOVEMBER 2025

Astana, 2025

INTRODUCTION

The study of regional climate and continuous monitoring of its change is one of the priority tasks of the national hydrometeorological service of Kazakhstan RSE «Kazhydromet».

For the preparation of the bulletin used observation data on the network of meteorological monitoring RSE «Kazhydromet»: series of average monthly air temperatures and monthly precipitation totals in the period since 1941.

Anomalies of mean monthly surface air temperatures and monthly precipitation totals are determined relative to the norms - mean multiyear values calculated for the period 1991–2020, recommended by the World Meteorological Organization as a baseline for monitoring the degree of anomaly of the current climate. Air temperature anomalies are calculated as deviations of the observed value from the norm. Precipitation anomalies are presented in percent of the norm, that is as a percentage ratio of the amount of precipitation to the corresponding value of the norm.

To characterize climatic extremes, maps are given, where for each station the range of empirical probability of non-exceedance of the current value in the time series of the variable under consideration for the period from 1941 to the current year is given (empirical probability of non-exceedance is the fraction of time series values less than or equal to the current value). If the probability of non-exceedance of the current value of the variable falls into the extreme ranges (0–5 % or 95–100 %), it means that this value occurred in no more than 5 % of cases in the period from 1941. If we look at the amount of precipitation, the former indicates extremely low precipitation, the latter extremely high precipitation.

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ANOMALIES OF MEAN MONTHLY AIR TEMPERATURE

November was a record-warm month: positive temperature anomalies were observed throughout the country (Fig. 1). The mean monthly air temperature anomaly was +8.74 °C.The most significant anomaly (+11.9 °C) was recorded at the Karaulkeldi meteorological station (Aktobe region). Air temperature anomalies exceeding 10 °C were observed in the western, northwestern, southwestern, and in some places in the central part of the republic. At 96.5 % of the meteorological station located in the above-mentioned regions of the country, «extremely warm» classifications were recorded, corresponding to the 95–100 % extremes (Fig. 2). In the Mangystau region, the Fort-Shevchenko meteorological station recorded the highest temperature (+15.6 °C). According to data from 193 weather stations, monthly air temperature records have been updated.

Figure 2 – Spatial distribution of probabilities of non-exceedance of air temperature in November 2025 calculated from data of the period 1941–2025

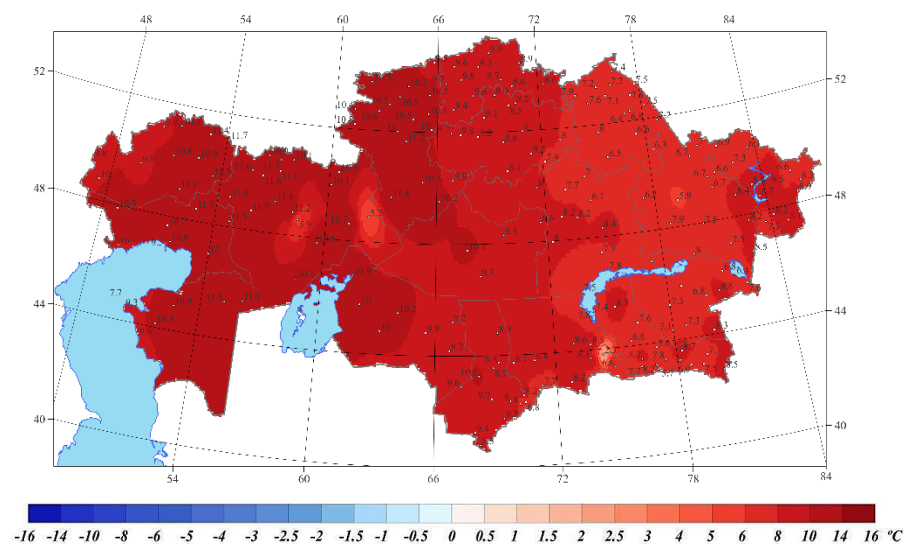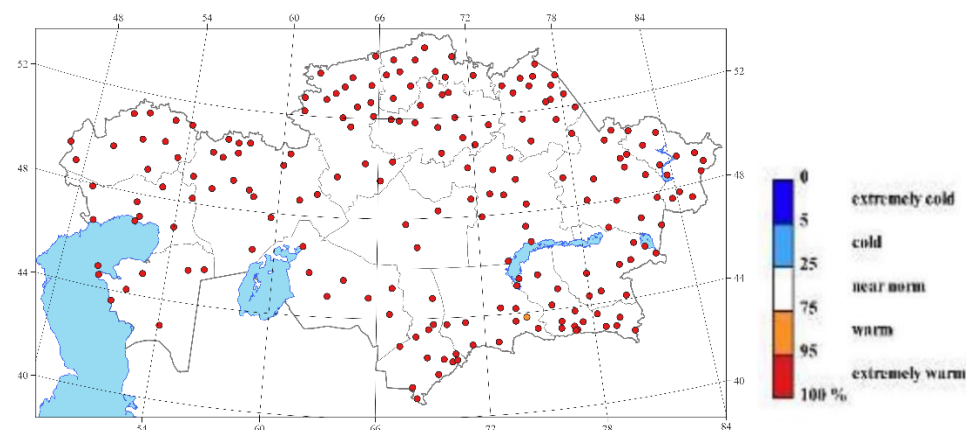*Figure 1 – Spatial distribution of anomalies of mean monthly air temperature (°C) in November 2025, calculated relative to the norms for the period 1991–2020*

MONTHLY PRECIPITATION

In November, precipitation was deficient in most of Kazakhstan (Fig. 3). Precipitation amounting to less than 80 % of the normal was observed in the northern, central, and southern parts of the country; in most of the Atyrau, Aktobe, Kostanay, Pavlodar, Zhambyl, and Almaty regions; as well as in the Abay and Zhetisu regions. In the above-mentioned areas, values with a probability of non-exceedance in the range of 0–5 % were recorded, which corresponds to the gradation of «extremely dry» (Fig. 4). According to six meteorological stations located in the Karaganda and Kyzylorda regions, precipitation was absent throughout the month. Values above normal were observed only in the west and in places in the northern and eastern parts of the country. More than 180 % of the normal precipitation fell in the West Kazakhstan and Atyrau regions. Four meteorological stations located in these regions entered the «extremely humid» gradation with a probability of not exceeding 95–100 % (Fig. 4). The most significant precipitation fell at the Uralsk meteorological station (West Kazakhstan region) 78.6 mm, which amounted to 379.7 % of the norm. The record for monthly precipitation was updated at the Novy Ushtogan meteorological station in Atyrau region (Table 1).
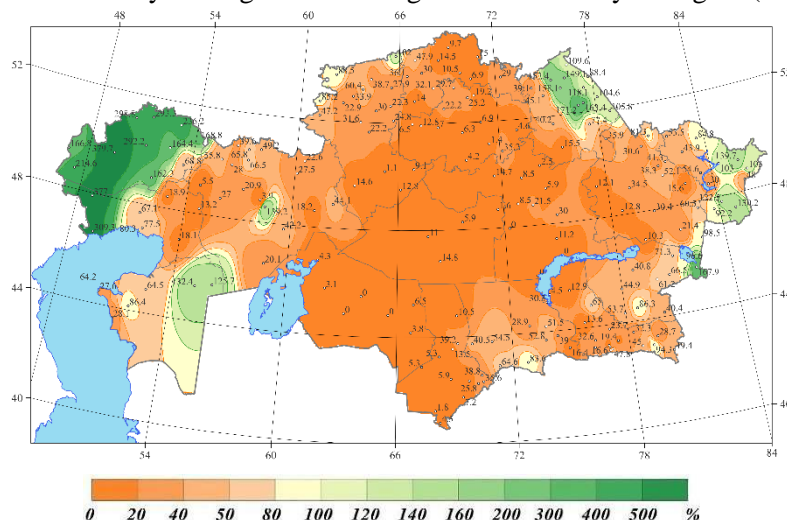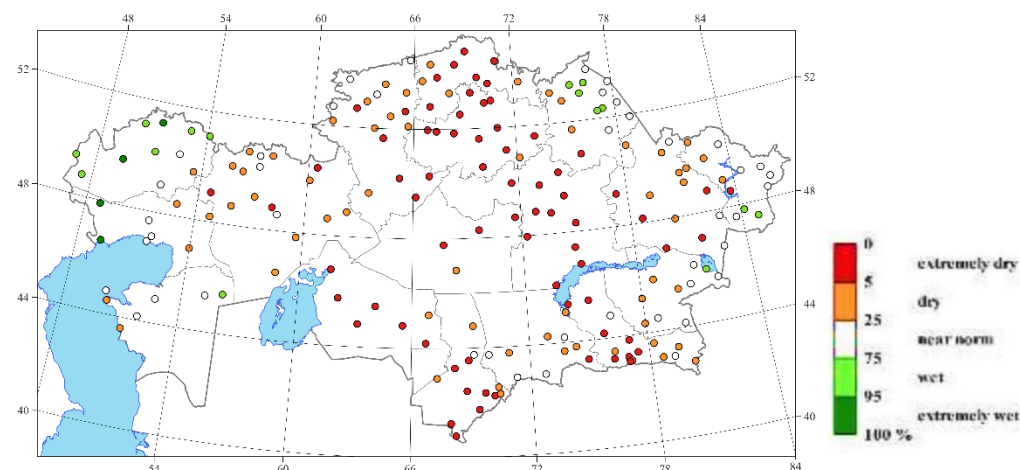

Figure 4 – Spatial distribution of probability of non-exceedance of precipitation in November 2025. Probabilities are calculated from data of the period 1941–2025

Table 1. Maximum monthly precipitation records for November 2025

№	Meteorological station	Region	New record of monthly total precipitation, mm	Previous record of monthly total precipitation, mm
1	Novy Ushtogan	Atyrau	52.4	50.1 (1961 y.)

Figure 3 – Spatial distribution of precipitation in November 2025 (in % of the norm calculated relative to the base period 1991–2020)