



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 AUGUST 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

In August, most of Kazakhstan experienced air temperature anomalies close to normal (± 1 °C) (Fig. 1). Positive anomalies ranging from 1.1 to 1.6 °C were recorded in the west – in most of Mangystau, in the southern part of Atyrau regions and in the mountainous areas of the south-east, as well as in some places in the south of Turkestan and Kyzylorda regions. The highest average monthly temperature in August ($+28.7$ °C) was recorded at the Shardara MS in the Turkestan region. At some meteorological stations in the Zhambyl and Almaty regions, positive anomalies entered the warm gradation with a probability of not exceeding 95–100 % (Fig. 2). Air temperatures below normal were observed in the north-east of Pavlodar, as well as in the northern part of East Kazakhstan and Abay regions, and locally in Kostanay and Karaganda regions. At some meteorological stations in the far east and Zhetysu region, the probability of air temperatures not exceeding the norm was 5–25 % (Fig. 2).

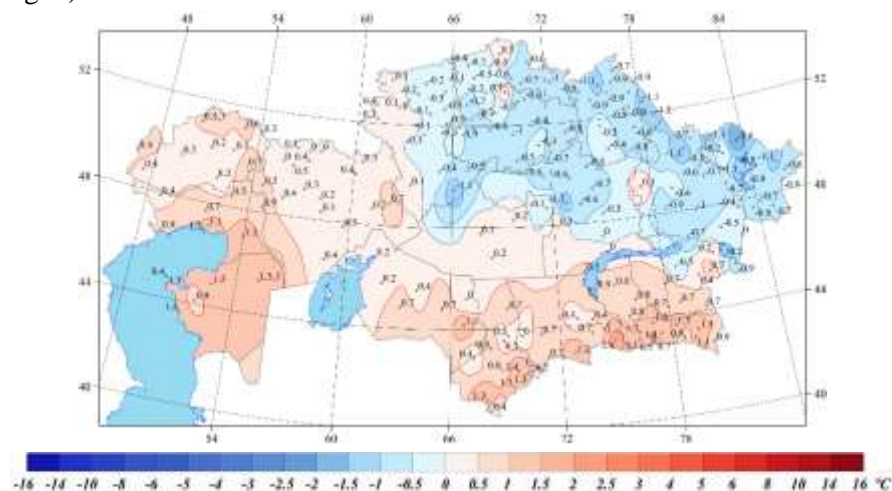


Figure 1 – Spatial distribution of anomalies of mean monthly air temperature (°C) in August 2025, calculated relative to the norms for the period 1991–2020

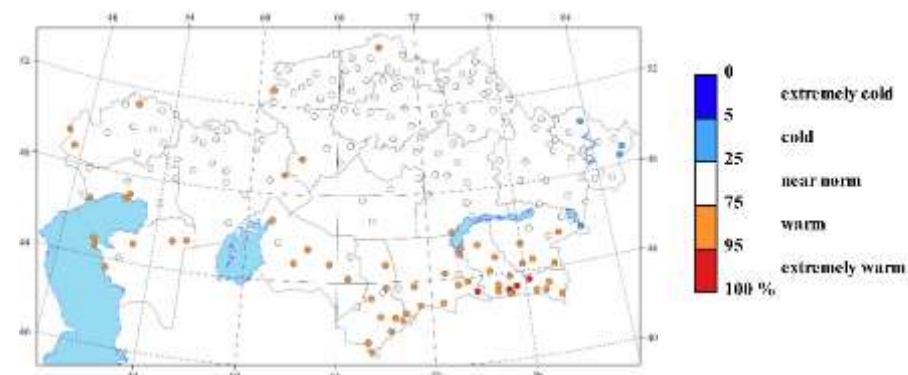


Figure 2 – Spatial distribution of probabilities of non-exceedance of air temperature in August 2025 calculated from data of the period 1941–2025

MONTHLY PRECIPITATION

In August, there was an uneven distribution of precipitation across the country (Fig. 3). Excess precipitation of more than 150–200 % was observed in the north-eastern, northern and central parts of the country, as well as in some places in the north of the western areas of Kazakhstan, in the northern and south-eastern parts of the Caspian Depression, in the south and in the mountainous areas, and in the Zhetysu region. Precipitation exceeding 300 % of the norm fell in the Pavlodar region, the Abay region and in the north of East Kazakhstan, in the west of Mangystau, in the north of Turkestan regions, and in the northern part of the Aral Sea region and the eastern part of the Kyzylorda region, where amounts of 410–491 % of the norm were recorded. The precipitation values at 14 meteorological stations located in these regions were classified as “extremely wet” with a probability of not exceeding 95–100 % (Fig. 4). At two meteorological stations in Pavlodar and Abay regions, monthly precipitation records were broken (Table 1).

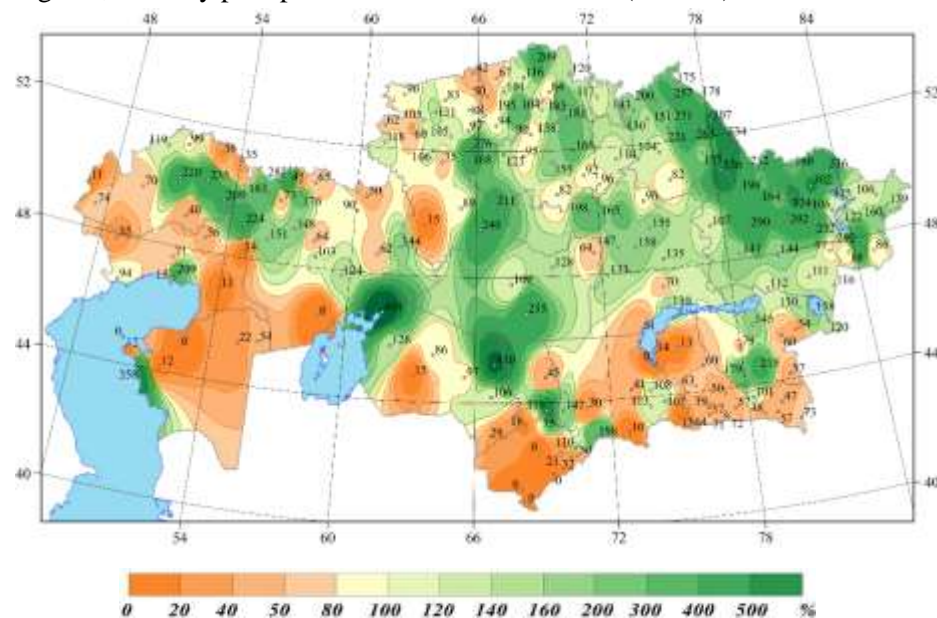


Figure 3 – Spatial distribution of precipitation in August 2025 (in % of the norm calculated relative to the base period 1991–2020)

Precipitation deficits of less than 80 % of normal, and in some places less than 20 % and even 10 % of normal, were observed in most of western Kazakhstan, in the north-western regions, as well as in the south, south-west and western parts of the Balkhash area. According to data from eight weather stations in the central part of Mangystau, in the south of Aktoobe, in Turkestan and in the east of Zhambyl regions, there was no precipitation throughout the month. In these areas, August was among the 5 % of extremely dry months (Fig. 4).

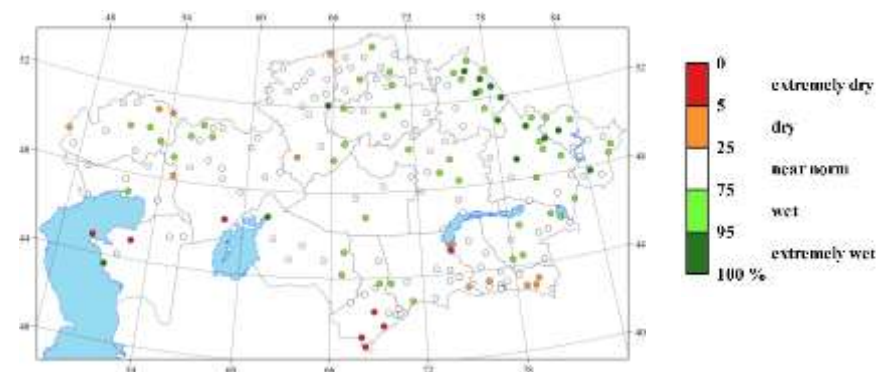


Figure 4 – Spatial distribution of probability of non-exceedance of precipitation in August 2025. Probabilities are calculated from data of the period 1941–2025

Table 1. Maximum monthly precipitation records for August 2025

№	Meteorological station	Region	New record of monthly total precipitation, mm	Previous record of monthly total precipitation, mm
1	Shalabay	Abay	86.5	85.6 (1990 y.)
2	Shalday	Pavlodar	97.5	85.9 (2013 y.)