



North EurAsia Climate Centre



The main features of large-scale atmospheric circulation in the Northern Hemisphere for the summer 2025

34th session of the South East European Climate Outlook Forum (SEECOF-34)

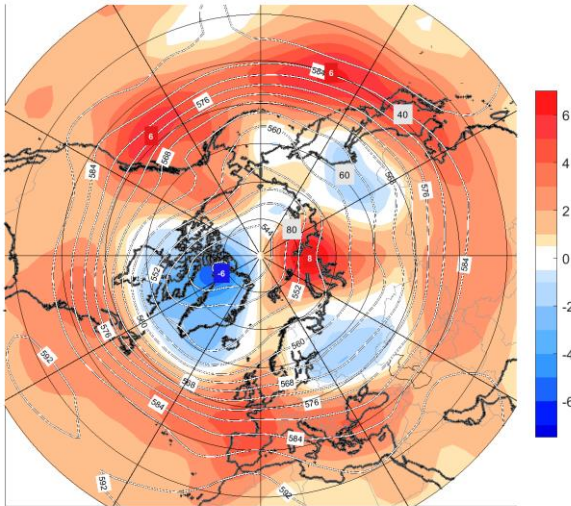
Step1

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<https://seakc.meteoinfo.ru/en/>

During the summer season, intraseasonal variability was observed in the mid-tropospheric circulation processes at the 500 hPa level:



- **In the Atlantic Ocean, both centers of atmospheric action were well-defined.**

- The center of the deep and extensive **Icelandic Low** was located over Greenland, with two primary cores: one over Greenland and Baffin Bay (-6 hPa), and another over the Norwegian Sea (-5 hPa).
- The **Azores High** was extensive and intense, with its center situated near the Azores Islands.

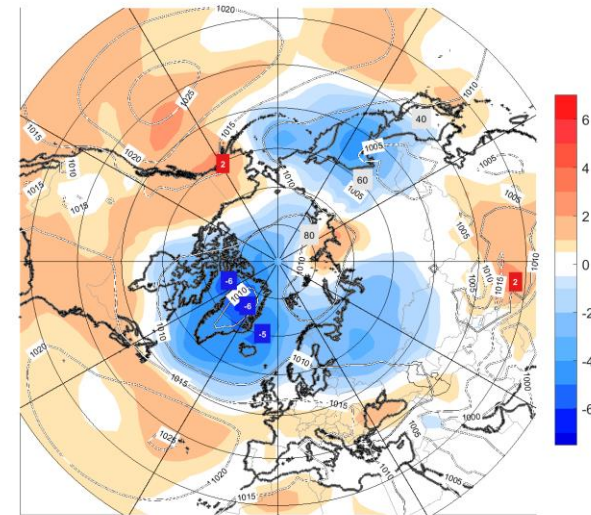
- **Surface pressure was above normal over most of Europe.**

- However, **negative surface pressure anomalies** were observed over Scandinavia, northeastern Europe, the European part of Russia (except the south), the Urals, and western Siberia.

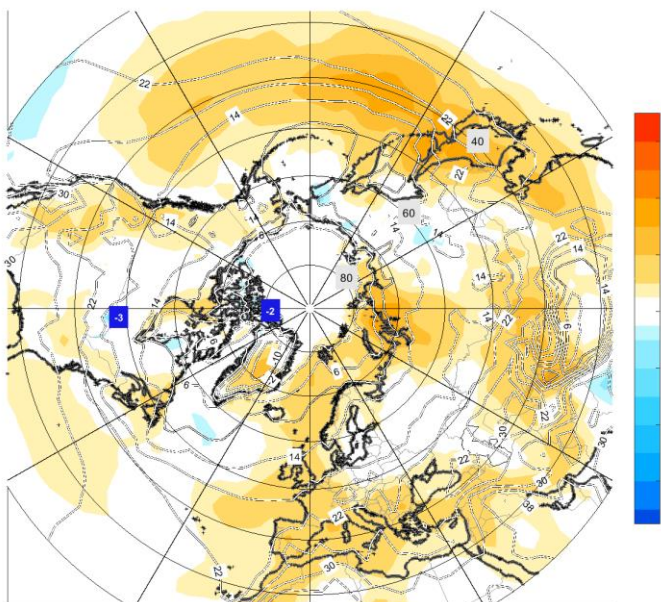
- **The southern regions of the European part of Russia were predominantly under the influence of anticyclones.**

- These were primarily ridges extending from the Azores High. The only significant exception was in July, when cyclones from Europe penetrated into the region.

- In Central Asia, the northern regions were dominated by cyclones, while the southern parts were under the influence of anticyclones from the south.



Temperature



T2M deg anomalies (norms 1991-2020). JJA 2025.

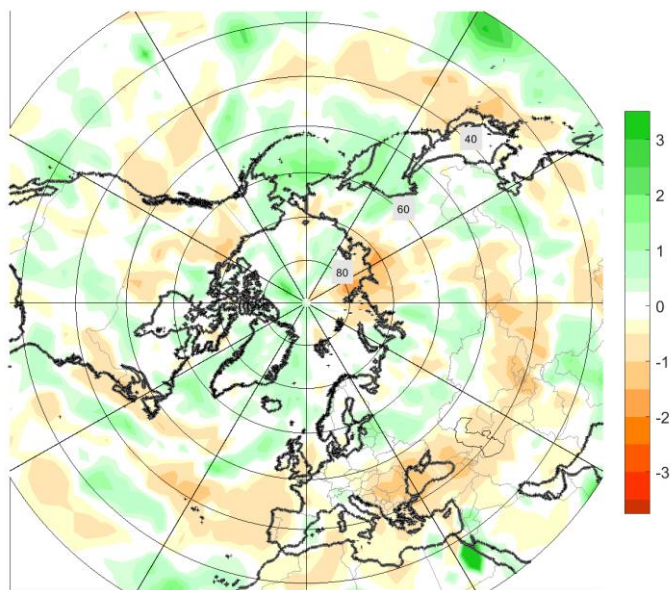
Seasonal temperature 2m anomalies
 (ERA5 reanalysis, based on a 1991-2020 mean)

Territory	Positive anomaly	Negative anomaly
Europe	except for the northeast	-
Russia	the south and northeast of the European part of Russia, most of Siberia, the south of Khabarovsk Krai, Primorsky Krai, and the Kamchatka Peninsula.	Foci of weak negative anomalies were recorded in the eastern part of the Chukotka Peninsula and in central Yakutia.
Central Asia	the south	-

Territory	Temperature, °C	Rank		Anomaly
		Current year	Warmest	
Northern Hemisphere	23,5	3	2024	0,5
Arctic	5,3	8-10	2020	0,5
Europe	21,1	3	2024	1,2
Russia	16,2	6-8	2024, 2021, 2016	0,7
EPR	18,2	20	2010	0,4
APR	15,7	2-5	2023	0,7

Data by the Hydrometeorological Center of Russia.

Precipitation

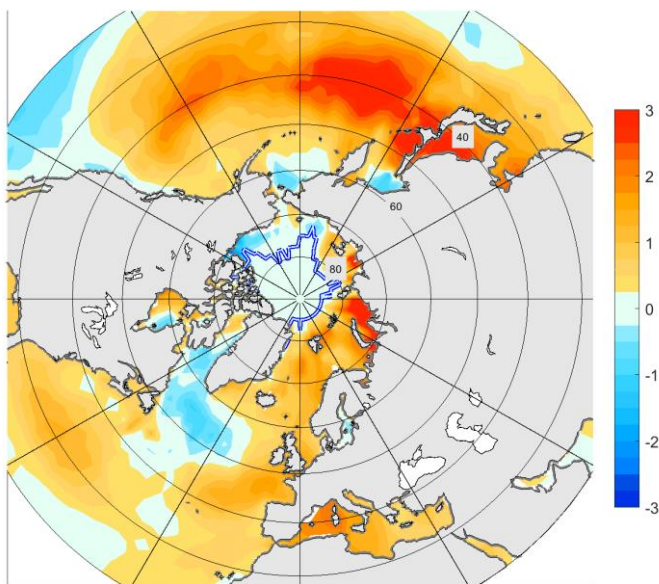


PREC sigma anomalies (norms 1991-2020). JJA 2025.

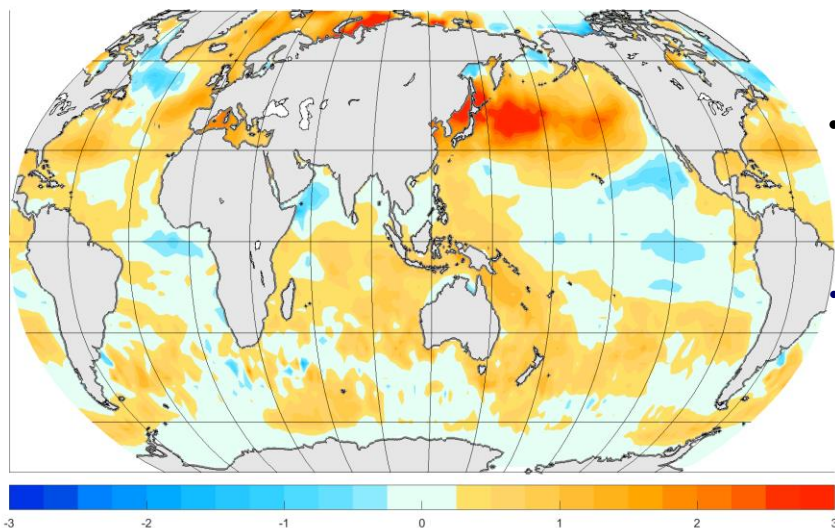
Precipitation anomalies
(ERA5 reanalysis, based on a 1991-2020 mean)

- Precipitation across **most of Europe** was near normal. A deficit was observed in the western Iberian Peninsula, western France, the British Isles, and southeastern Europe;
- Within the **European part of Russia**, summer precipitation was below normal in the far south, while the central part of the region received above-normal amounts;
- **In Central Asian countries**, surplus precipitation was observed locally in northern Kazakhstan, while a deficit occurred in southern Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, and Kyrgyzstan.

SST in Northern Hemisphere



SST deg anomalies (norms 1991-2020). JJA 2025.

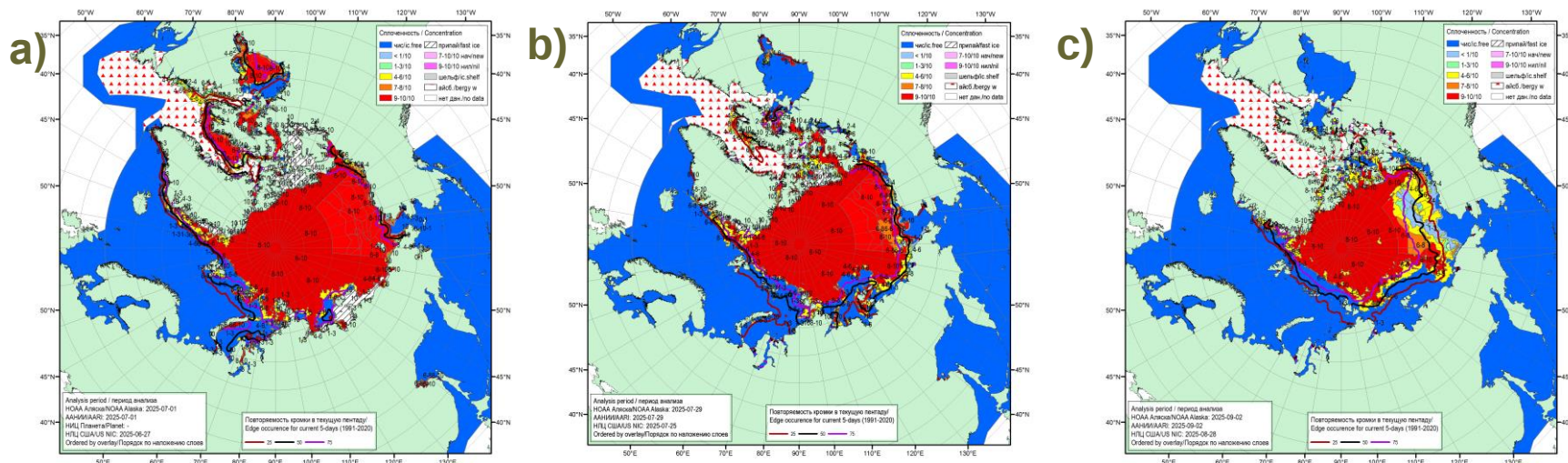


Seasonal SST anomalies
(ERA5 reanalysis, based on a 1991-2020 mean)

SST:

- **Seasonally averaged sea surface temperature (SST) anomalies were positive over most of the North Pacific Ocean.** The largest anomalies (exceeding 2-3°C) were observed in the western part of the ocean. Negative SST anomalies were recorded in the northern Bering Sea, the northern Sea of Okhotsk, and in the eastern Pacific Ocean near the Baja California Peninsula.
- **In the Atlantic Ocean, the positive SST anomalies were less pronounced than in the Pacific.** An area of negative anomalies was observed in the northern part of the basin: south of Greenland, in the Davis Strait, and in Baffin Bay.
- **Elevated SSTs were also observed in the Russian Arctic seas during the summer, reaching 3-4 degrees in the Kara Sea.**
- According to the Climate Prediction Center (CPC) of NOAA, a **neutral El Niño** phase was observed during the summer of 2025.

Sea ice extent in the Arctic region



Ice edge and areas of rarefied (<8/10) and cohesive ($\geq 8/10$) ice in the Arctic Ocean on a) 27.06.-01.07.25 r.; b) 25-29.07.25 r.; c) 28.08.-02.09.25 r. based on the ice analysis of the US NIC, and edge repeatability from 21-25.04 for the period 1979-2017 according to SSMR-SSM/I-SSMIS observations (NASATEAM algorithm).

- Throughout the season, low ice cover was observed in the Barents and Kara Seas, as well as in Hudson Bay and Baffin Bay;
- In the East Siberian Sea and Laptev Sea, the rate of ice loss in July and August exceeded the average;
- On September 10, 2025**, the Arctic sea ice reached its annual minimum extent of 4.60 million square kilometers. The date of the ice cover minimum this year was four days earlier than the 1981-2010 average date of September 14. The 2025 Arctic ice minimum ranks as the **10th lowest** in the satellite record dating back to 1979.

Thank you 😊