

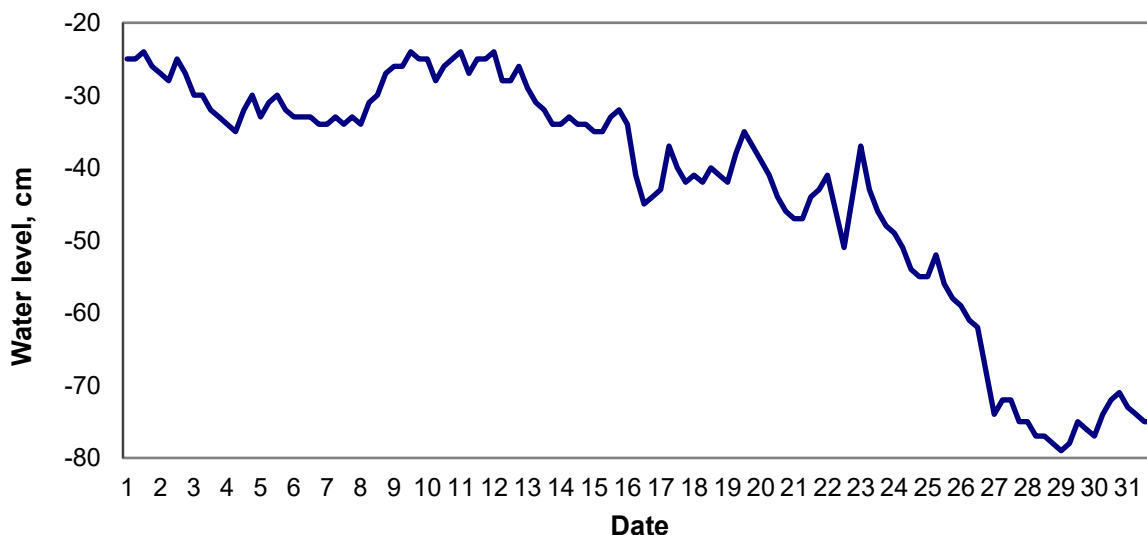


**MINISTRY OF ECOLOGY AND NATURAL RESOURCES
OF THE REPUBLIC OF KAZAKHSTAN
RSE «KAZHYDROMET»**

RESEARCH CENTER

**OVERVIEW OF UP SURGE AND DOWN SURGE EVENTS
in May 2025**

Peshnoy



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
23-24.05		18	southwest, north-northwest	6
25-27.05		22	east-northeast, east-southeast	8

- On 23-24 May, a sea level fall by 18 cm was observed from minus 28.37 m BS to minus 28.55 m BS. The wind speed reached 6 m/s, predominantly from the southwest, north-northwest.

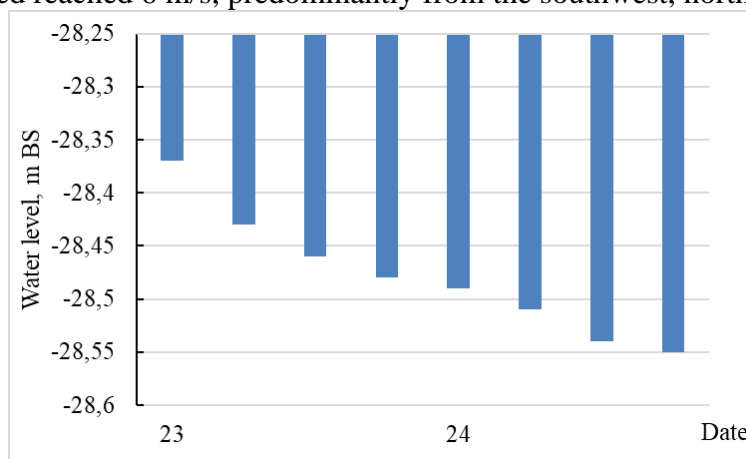


Figure. Graph of sea level changes in Peshnoy on May 23-24, 2025.

- On 25-27 May, a sea level fall by 22 cm was observed from minus 28.52 m BS to minus 28.74 m BS. The wind speed reached 8 m/s, predominantly from the east-northeast, east-southeast.

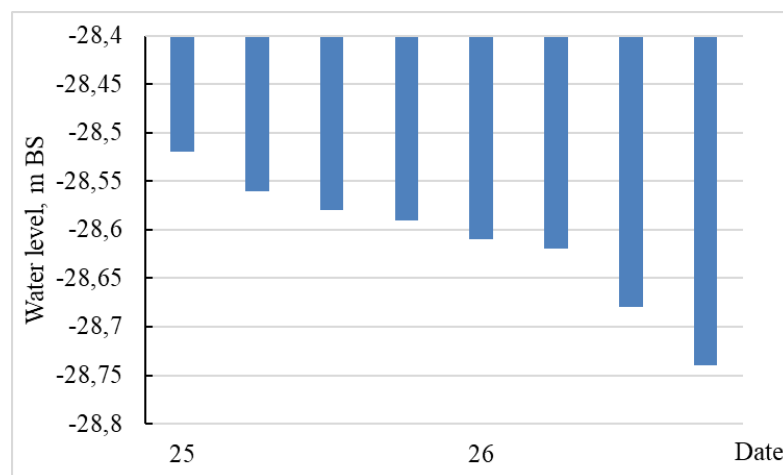
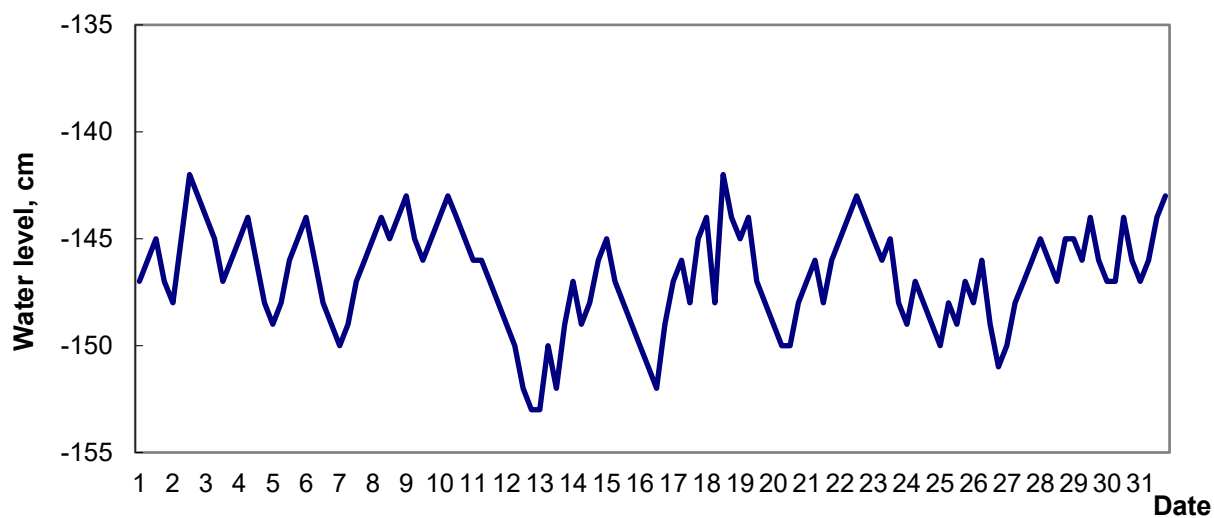


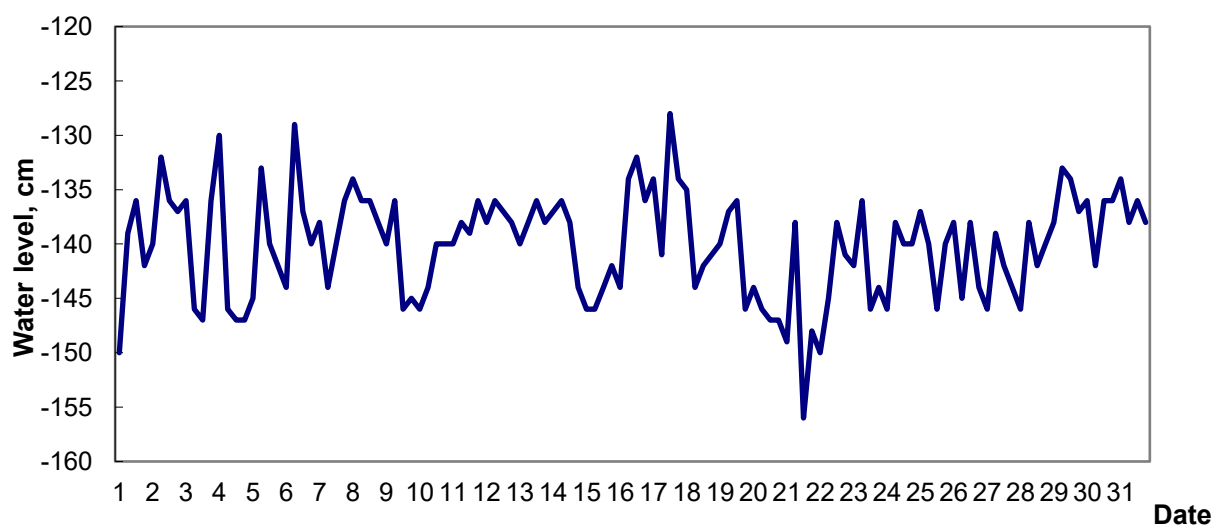
Figure. Graph of sea level changes in Peshnoy on May 25-27, 2025.

Kulaly, island



The runup and surge level fluctuations did not exceed 11 cm. The sea level change during the month varied from minus 29.53 m BS to minus 29.42 m BS.

Fort-Shevchenko



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
03-04.05	17		northwest	2
06.05	15		southeast	2
17-18.05		16	southeast	6
21.05		18	northwest	7

- On 03-04 May, a sea level rise by 17 cm was observed from minus 29.47 m BS to minus 29.3 m BS. The wind speed reached 2 m/s, predominantly from the northwest directions;

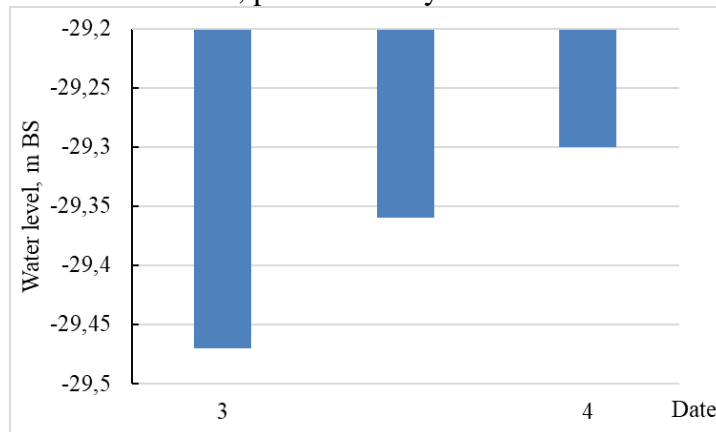


Figure. Graph of sea level changes in Fort-Shevchenko on May 03-04, 2025.

- On 06 May, a sea level rise by 15 cm was observed from minus 29.44 m BS to minus 29.29 m BS. The wind speed reached 2 m/s, predominantly from the southeast;

- On 17-18 May, a sea level fall by 16 cm was observed from minus 29.28 m BS to minus 29.34 m BS. The wind speed reached 6 m/s, predominantly from the southeast;

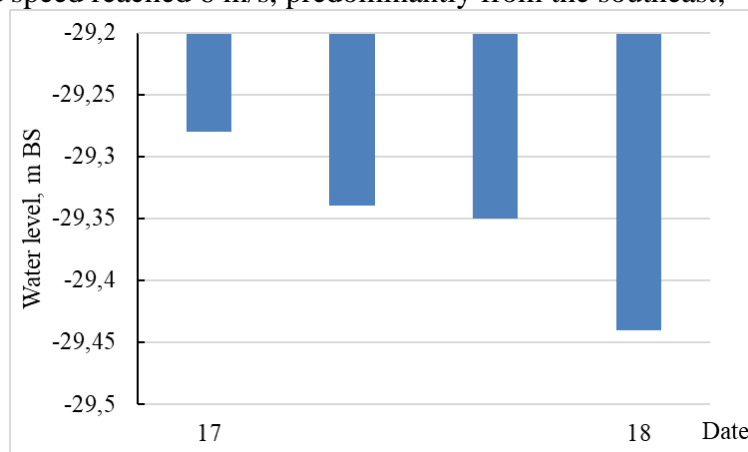
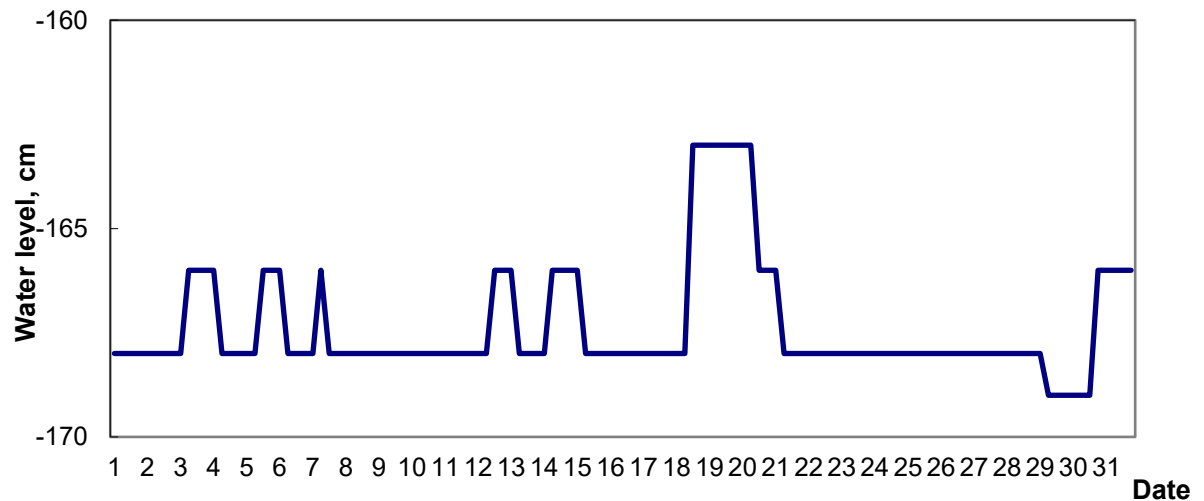


Figure. Graph of sea level changes in Fort-Shevchenko on May 17-18, 2025.

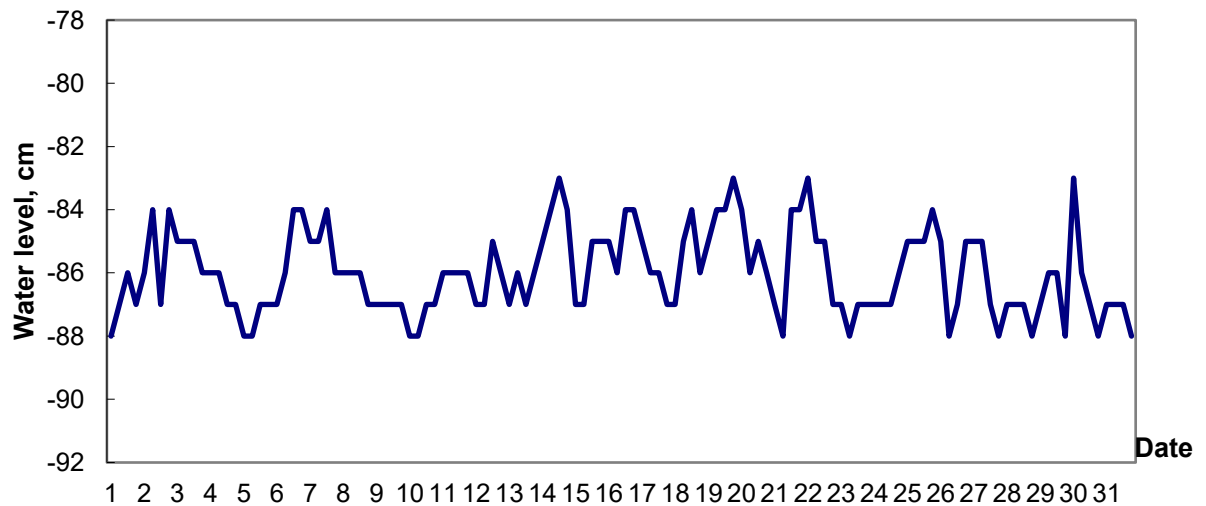
- On 21 May, a sea level fall by 18 cm was observed from minus 29.38 m BS to minus 29.56 m BS. The wind speed reached 7 m/s, predominantly from the northwest;

Saura



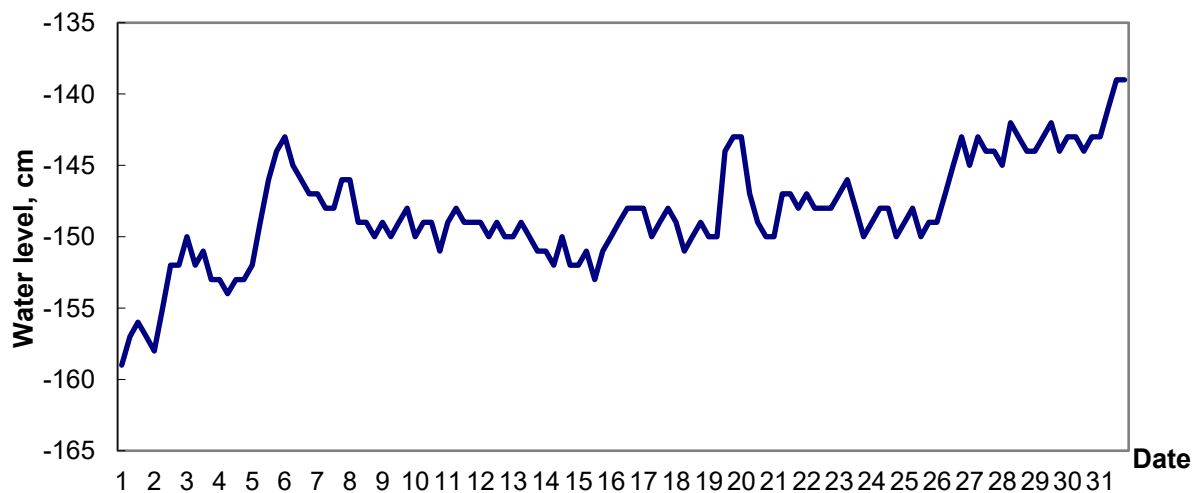
The runup and surge level fluctuations did not exceed 6 cm. The sea level change during the month fluctuated from minus 29.69 m BS to minus 29.63 m BS.

Peschany



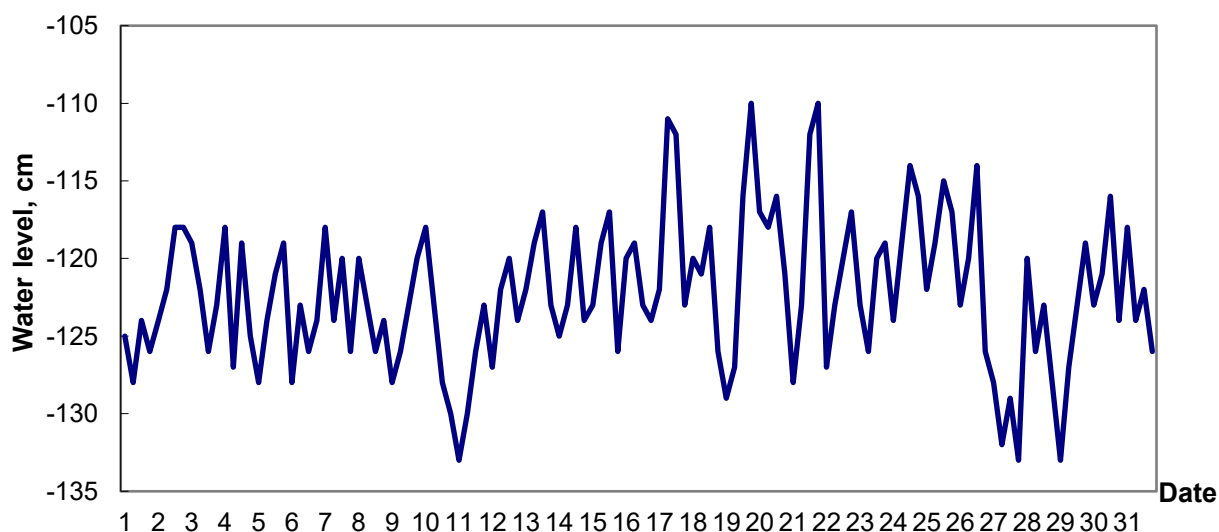
The runup and surge level fluctuations did not exceed 5 cm. The sea level change during the month fluctuated from minus 28.88 m BS to minus 28.83 m BS.

Aktau



The runup and surge level fluctuations did not exceed 10 cm. The sea level change during the month fluctuated from minus 28.59 m BS to minus 28.39 m BS.

Fetisovo



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
10-11.05		15	south-southeast	8
19.05	19		northwest	12
21.05	18		northwest	13
26-27.05		18	east	12

- On 10-11 May, a sea level fall by 15 cm was observed from minus 29.18 m BS to minus 29.33 m BS. The wind speed reached 8 m/s, predominantly from the south-southeast;

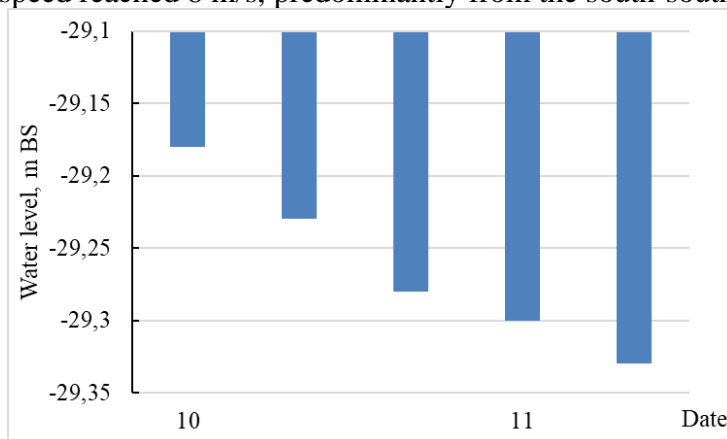


Figure. Graph of sea level changes in Fetisovo on May 10-11, 2025.

- On 19 May, a sea level rise by 19 cm was observed from minus 29.29 m BS to minus 29.1 m BS. The wind speed reached 12 m/s, predominantly from the northwest;

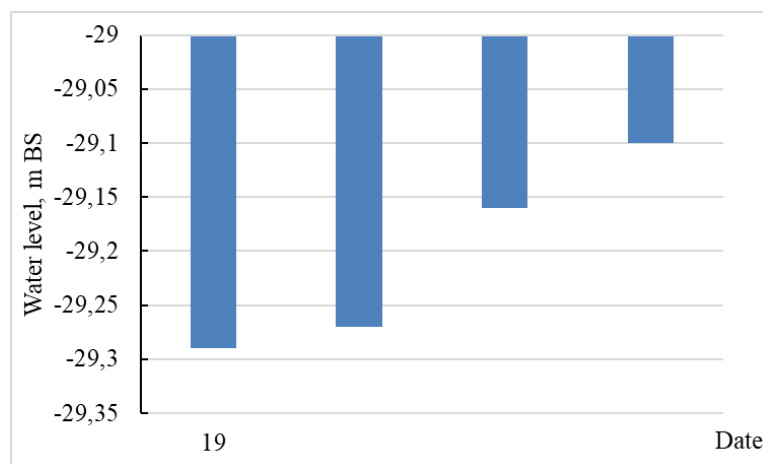


Figure. Graph of sea level changes in Fetisovo on May 19, 2025.

- On 21 May, a sea level rise by 18 cm was observed from minus 29.28 m BS to minus 29.1 m BS. The wind speed reached 13 m/s, predominantly from the northwest;

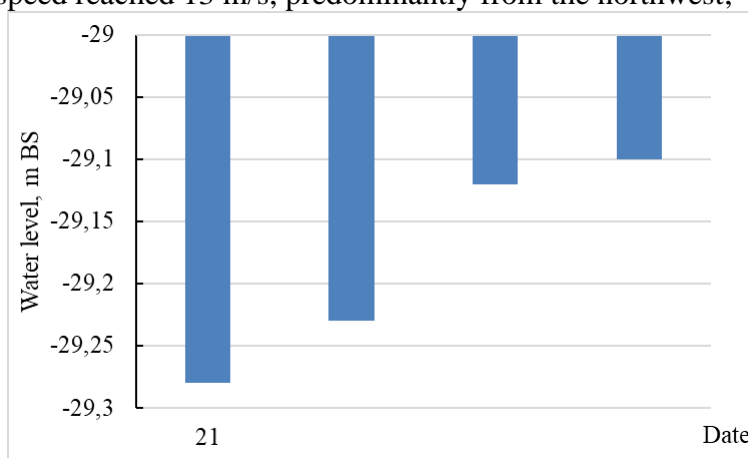


Figure. Graph of sea level changes in Fetisovo on May 21, 2025.

- On 26-27 May, a sea level rise by 18 cm was observed from minus 29.14 m BS to minus 29.32 m BS. The wind speed reached 12 m/s, predominantly from the east;

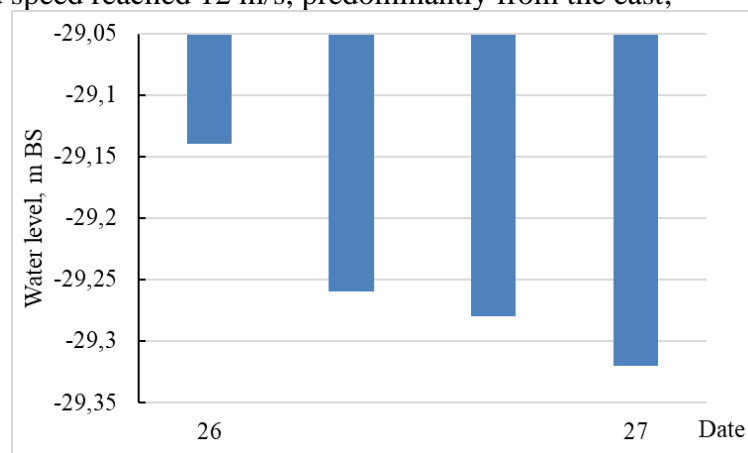


Figure. Graph of sea level changes in Fetisovo on May 26-27, 2025.

Note:

Analysis of the Zhanbay upsurge and downsurge events was not performed due to the receipt of hydrometeorological data with gaps.

STORM SURGE HAZARD CRITERIA FOR THE NORTHEASTERN COASTLINE

	Rise/Fall, cm	Characteristic***	Consequences
Up surge	50	Critical	Flooded coast area to 5 km
	65	Danger	Flooding and flooding of dams and buildings up to 10 km
	110	Especially danger	Flooding of the coast for more than 10 km, destruction of dams and buildings
Down surge	-50	Critical	worsening navigation conditions for small ships
	-65	Danger	Worsening of navigation conditions for small and medium-sized ships
	-100	Especially danger	Ships would be aground

** The calculated characteristics were obtained using the hydrodynamic module of the MIKE 21 Flow Model, adapted in RSE "Kazhydromet" to the conditions of the Caspian Sea. Data of sea level measurements and pressure field numerical forecasting for 24 –120 hours were used in computation.*

*** At definition of characteristic marks local conditions were considered.*

**** Critical – 50 % frequency, danger – 25 % frequency, especially danger– 2 % frequency. The calculation was carried out for the period 1940-2020 according to the data of Peshnoy station. BS – Baltic System*

The bulletin was compiled by the Department of Hydrometeorological Research of the Caspian Sea

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When using materials of the bulletin the link to RSE "Kazhydromet" is obligatory
