

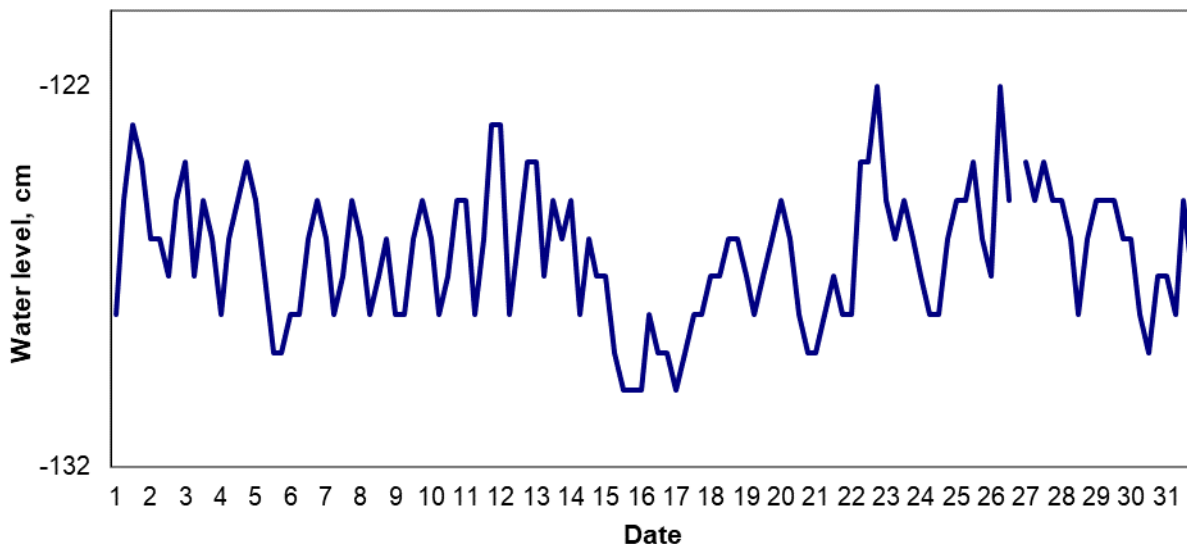


**MINISTRY OF ECOLOGY AND NATURAL RESOURCES
OF THE REPUBLIC OF KAZAKHSTAN
RSE «KAZHYDROMET»**

RESEARCH CENTER

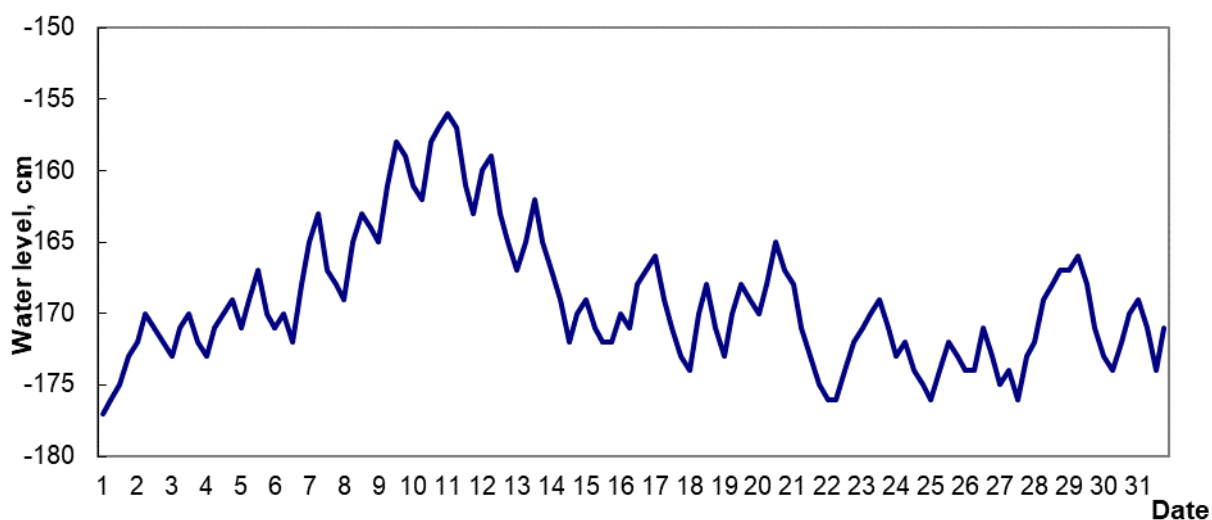
**OVERVIEW OF UP SURGE AND DOWN SURGE EVENTS
in October 2025**

Peshnoy



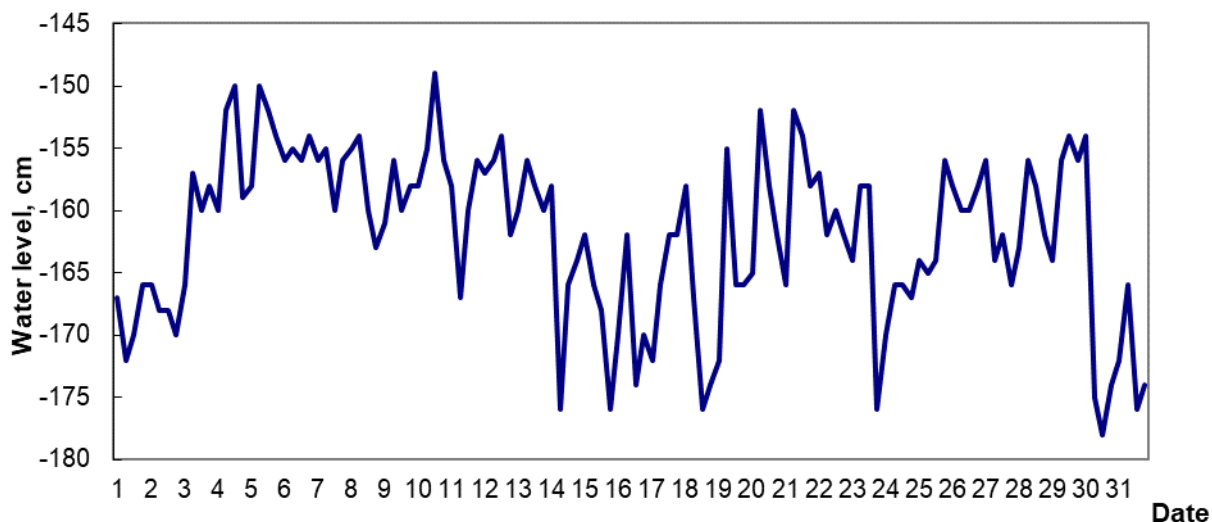
The runup and surge phenomena were not recorded. The sea level change during the month fluctuated from minus 29.30 m BS to minus 29.22 m BS.

Kulaly, island



The runup and surge phenomena were not recorded. The sea level change during the month fluctuated from minus 29.77 m BS to minus 29.56 m BS.

Fort-Shevchenko



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
10-11.10		18	NW	3
14.10		18	NW	11
18.10		18	SE, NE	5
23.10		18	NW, NE	2
30.10		24	NW	10

- On 10-11 October, a sea level fall by 18 cm was observed from minus 29.49 m BS to minus 29.67 m BS. The wind speed reached 3 m/s, predominantly from the northwest;

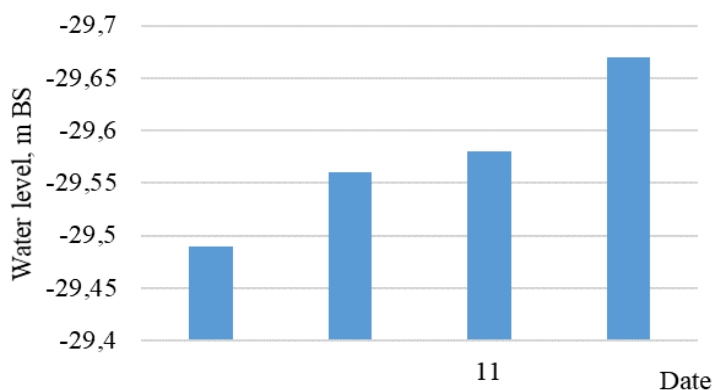


Figure. Graph of sea level changes in Fort-Shevchenko on October 10-11, 2025.

- On 14 October, a sea level fall by 18 cm was observed from minus 29.58 m BS to minus 29.76 m BS. The wind speed reached 11 m/s, predominantly from the northwest;

- On 18 October, a sea level fall by 18 cm was observed from minus 29.58 m BS to minus 29.76 m BS. The wind speed reached 5 m/s, predominantly from the southeast, northeast;

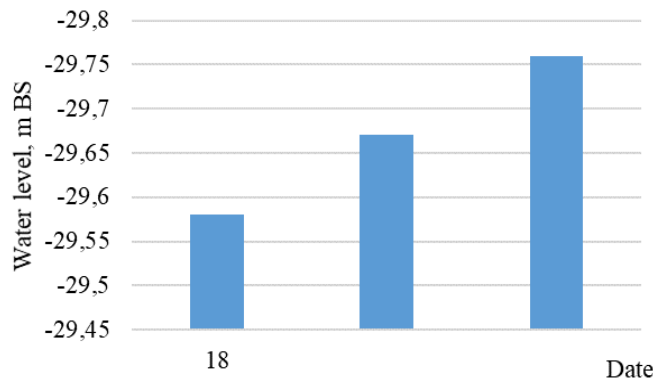


Figure. Graph of sea level changes in Fort-Shevchenko on October 18, 2025.

- On 23 October, a sea level fall by 18 cm was observed from minus 29.58 m BS to minus 29.76 m BS. The wind speed reached 2 m/s, predominantly from the northwest, northeast;
- On 30 October, a sea level fall by 24 cm was observed from minus 29.54 m BS to minus 29.78 m BS. The wind speed reached 10 m/s, predominantly from the northwest;

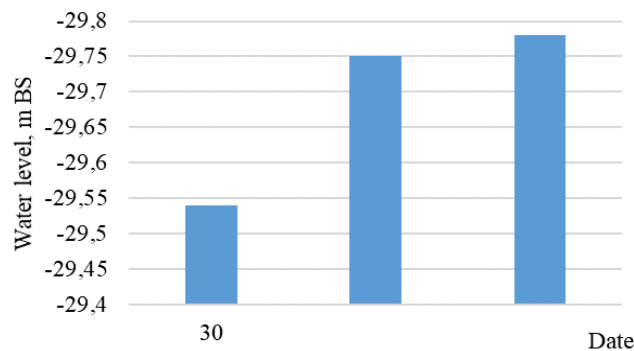
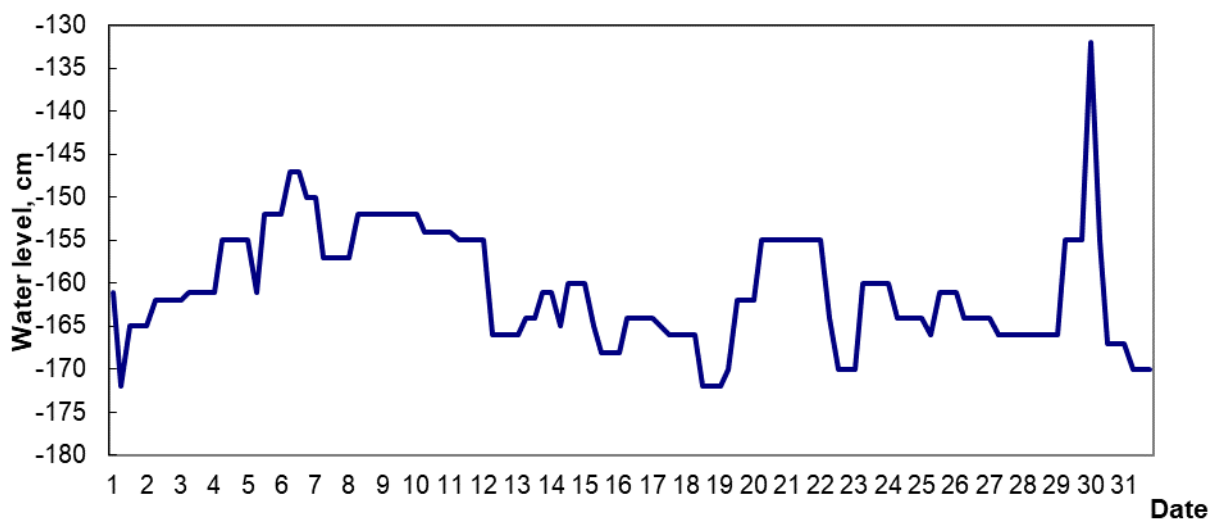


Figure. Graph of sea level changes in Fort-Shevchenko on October 30, 2025.

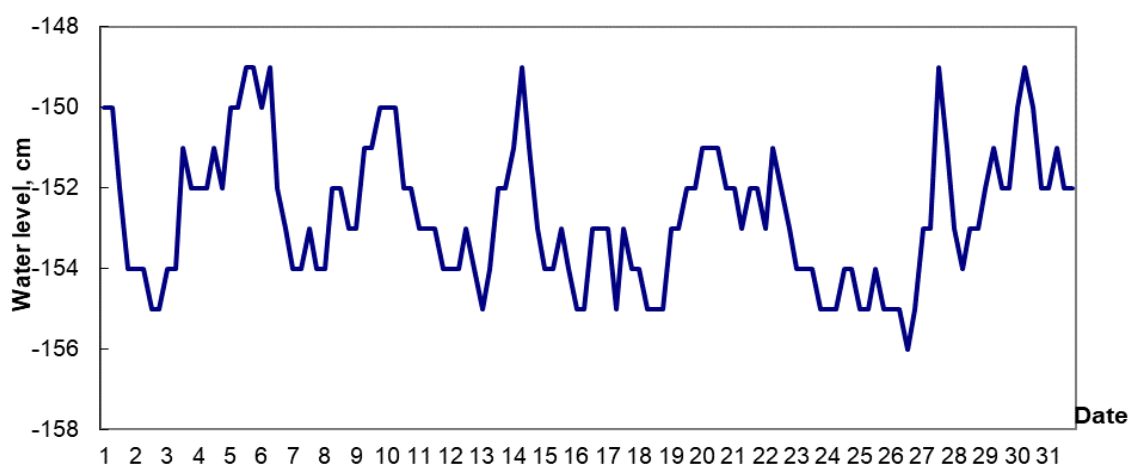
Saura



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
29-30.10	23		W, NW	10

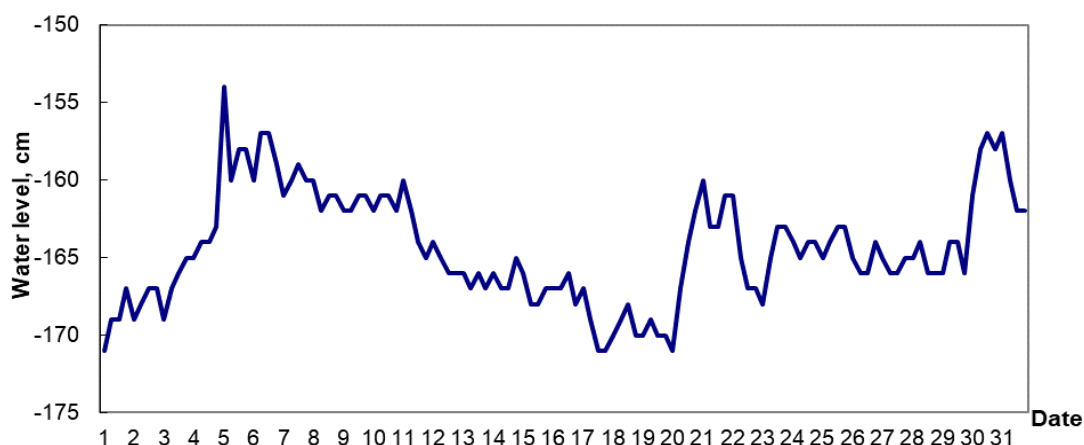
- On 29-30 October, a sea level rise by 23 cm was observed from minus 29.55 m BS to minus 29.32 m BS. The wind speed reached 10 m/s, predominantly from the west, northwest;

Peschany



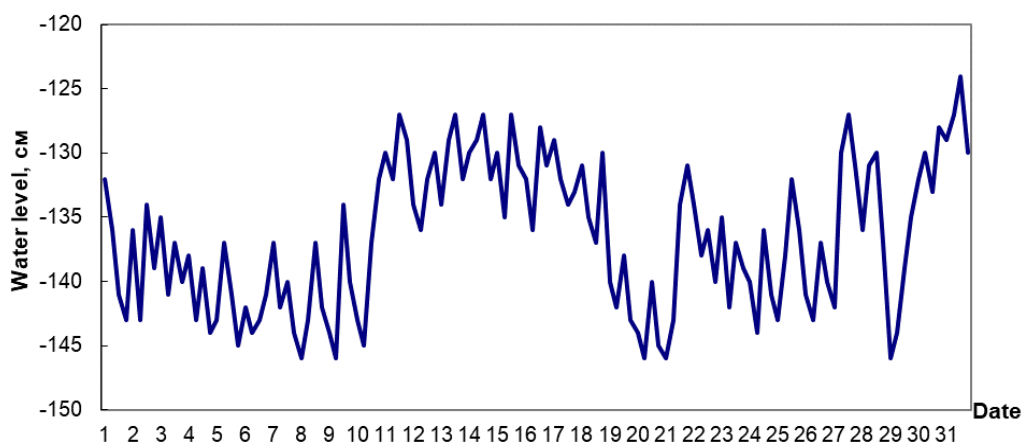
The runup and surge level fluctuations did not exceed 7 cm. The sea level change during the month varied from minus 29.56 m BS to minus 29.49 m BS.

Aktau



The runup and surge level fluctuations did not exceed 13 cm. The sea level change during the month varied from minus 29.71 m BS to minus 29.54 m BS.

Fetisovo



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
10-11.10	15		NW	13
21.10	15		E	8
27.10	15		NW	9
28-29.10		16	SE	8

- On 10-11 October, a sea level rise by 15 cm was observed from minus 29.45 m BS to minus 29.30 m BS. The wind speed reached 13 m/s, predominantly from the northwest;

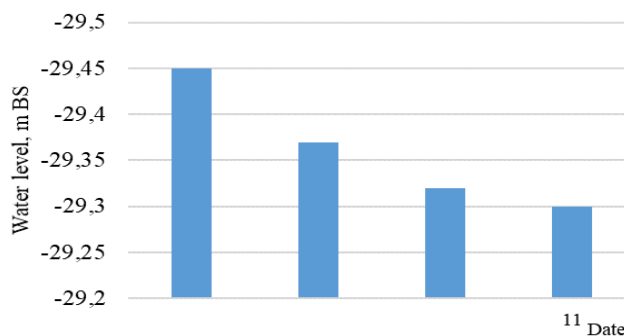


Figure. Graph of sea level changes in Fetisovo on October 10-11, 2025.

- On 21 October, a sea level rise by 15 cm was observed from minus 29.46 m BS to minus 29.31 m BS. The wind speed reached 8 m/s, predominantly from the east;

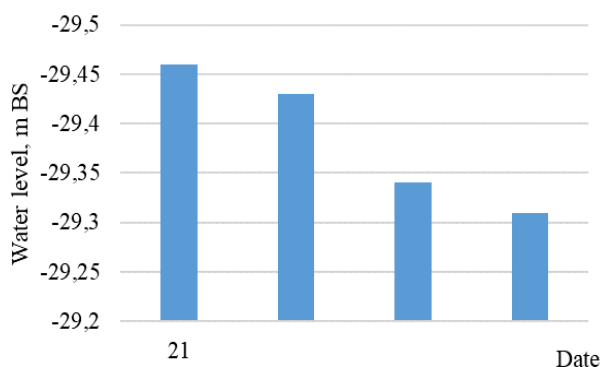


Figure. Graph of sea level changes in Fetisovo on October 21, 2025.

- On 27 October, a sea level rise by 15 cm was observed from minus 29.42 m BS to minus 29.27 m BS. The wind speed reached 9 m/s, predominantly from the northwest;

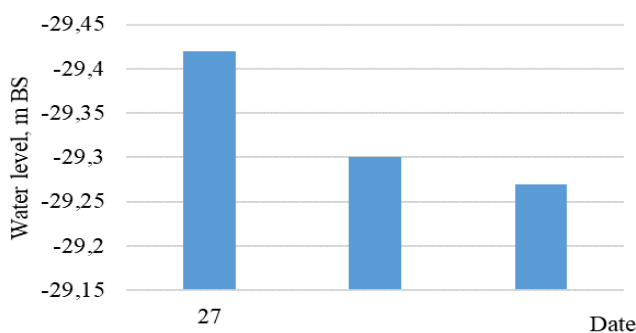


Figure. Graph of sea level changes in Fetisovo on October 27, 2025.

- On 30 October, a sea level fall by 16 cm was observed from minus 29.30 m BS to minus 29.46 m BS. The wind speed reached 8 m/s, predominantly from the southeast;

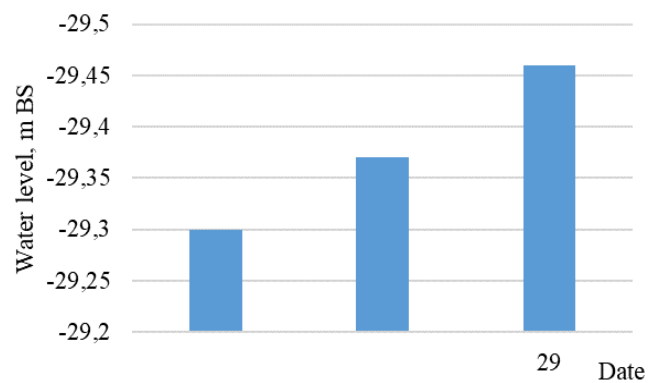


Figure. Graph of sea level changes in Fetisovo on October 30, 2025.

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
