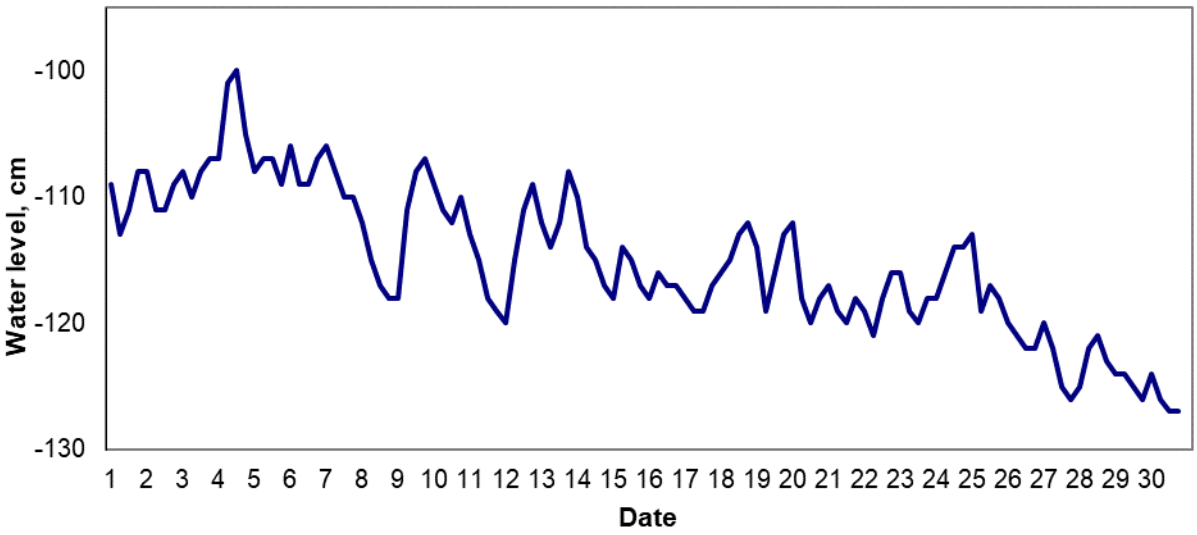
MINISTRY OF ECOLOGY AND NATURAL RESOURCES OF THE REPUBLIC OF KAZAKHSTAN
RSE «KAZHYDROMET»

RESEARCH CENTER

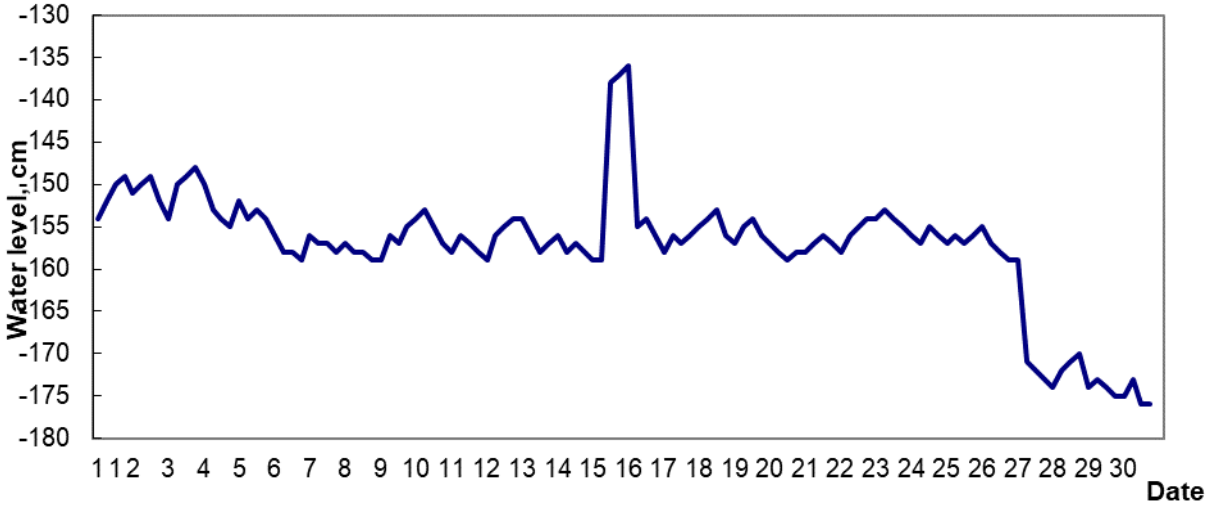
OVERVIEW OF UP SURGE AND DOWN SURGE EVENTS in September 2025

Peshnoy



The runup and surge phenomena were not recorded. The sea level change during the month fluctuated from minus 29.27 m BS to minus 29.00 m BS.

Kulaly, island



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
15-16.09	23		NE	3
27-28.09		15	N	9

- On 15-16 September, a sea level rise by 23 cm was observed from minus 29.59 m BS to minus 29.36 m BS. The wind speed reached 3 m/s, predominantly from the northeast;

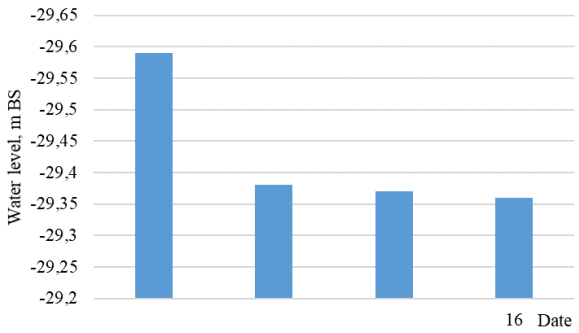


Figure. Graph of sea level changes in Kulaly on September 15-16, 2025.

- On 27-28 September, a sea level fall by 15 cm was observed from minus 29.59 m BS to minus 29.74 m BS. The wind speed reached 9 m/s, predominantly from the north;

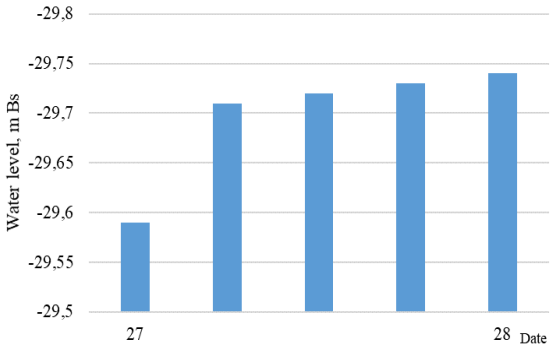
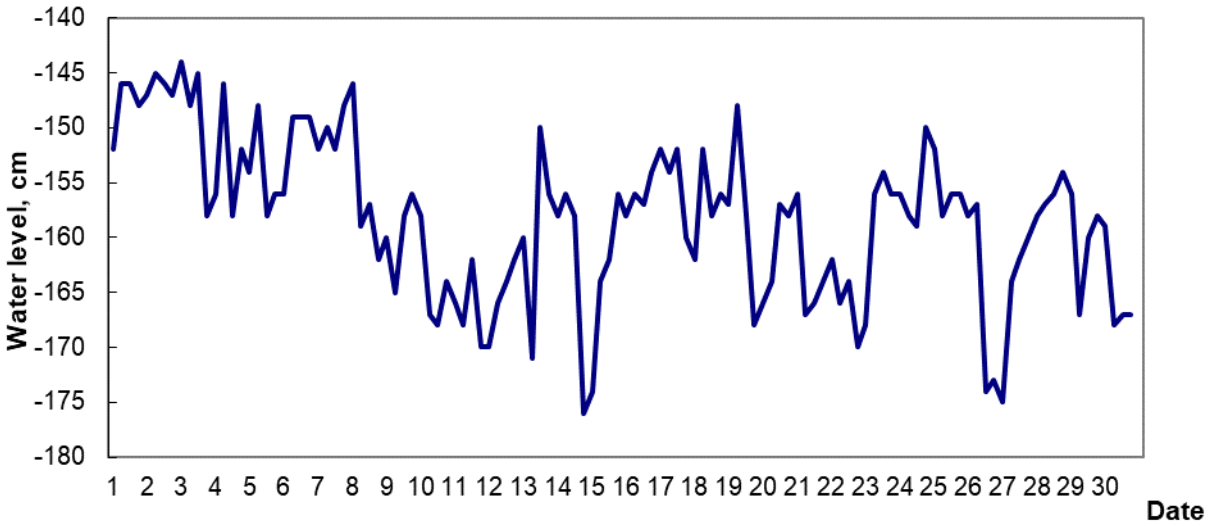


Figure. Graph of sea level changes in Kulaly on September 27-28, 2025.

Fort-Shevchenko



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
13.09	21		NE	5
14.09		18	N, NW	4
19.09		20	E, SE	10
22-23.09	16		SE	4
27-28.09	21		NE	6

- On 13 September, a sea level rise by 21 cm was observed from minus 29.71 m BS to minus 29.50 m BS. The wind speed reached 5 m/s, predominantly from the northeast;

- On 14 September, 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 4 m/s, predominantly from the north, northwest;

- On 19 September, a sea level fall by 20 cm was observed from minus 29.48 m BS to minus 29.68 m BS. The wind speed reached 10 m/s, predominantly from the east, southeast;

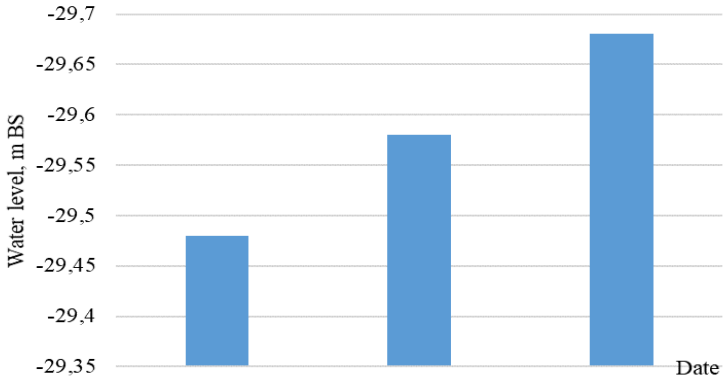


Figure. Graph of sea level changes in Fort-Shevchenko on September 19, 2025.

- On 22-23 September, a sea level rise by 16 cm was observed from minus 29.70 m BS to minus 29.54 m BS. The wind speed reached 4 m/s, predominantly from the southeast;

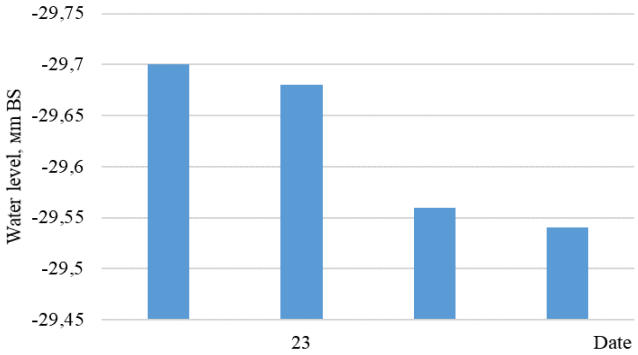


Figure. Graph of sea level changes in Fort-Shevchenko on September 22-23, 2025.

- On 27-28 September, a sea level rise by 21 cm was observed from minus 29.75 m BS to minus 29.54 m BS. The wind speed reached 6 m/s, predominantly from the northeast;

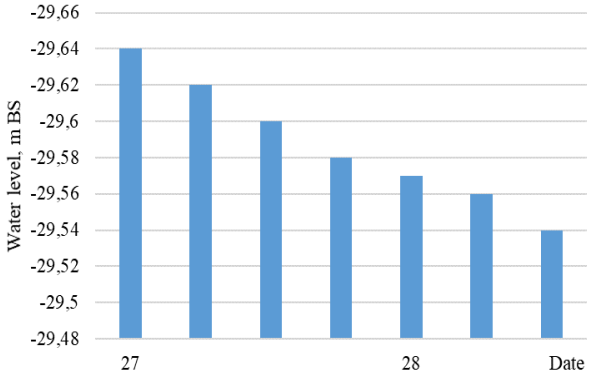
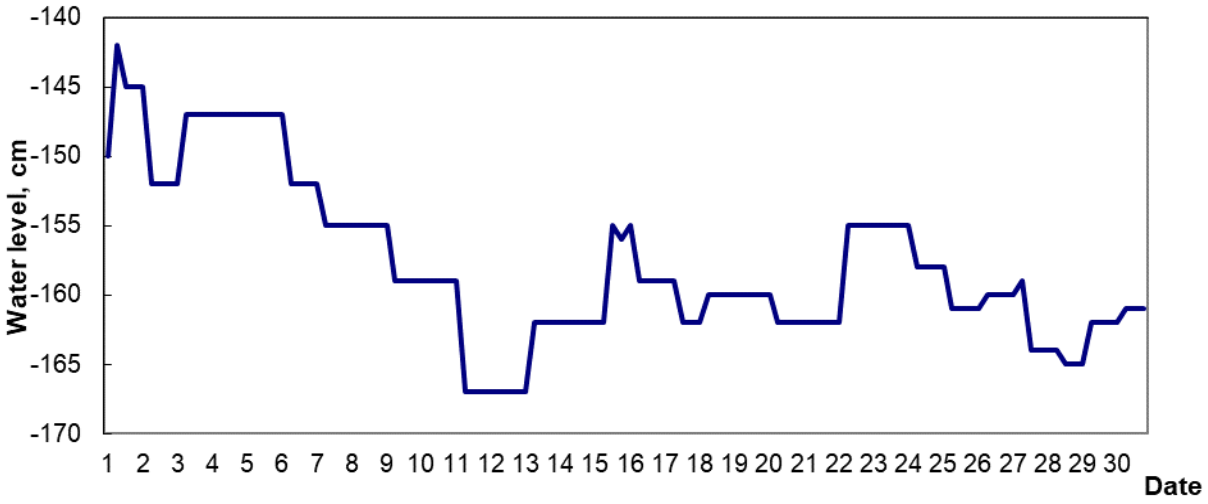


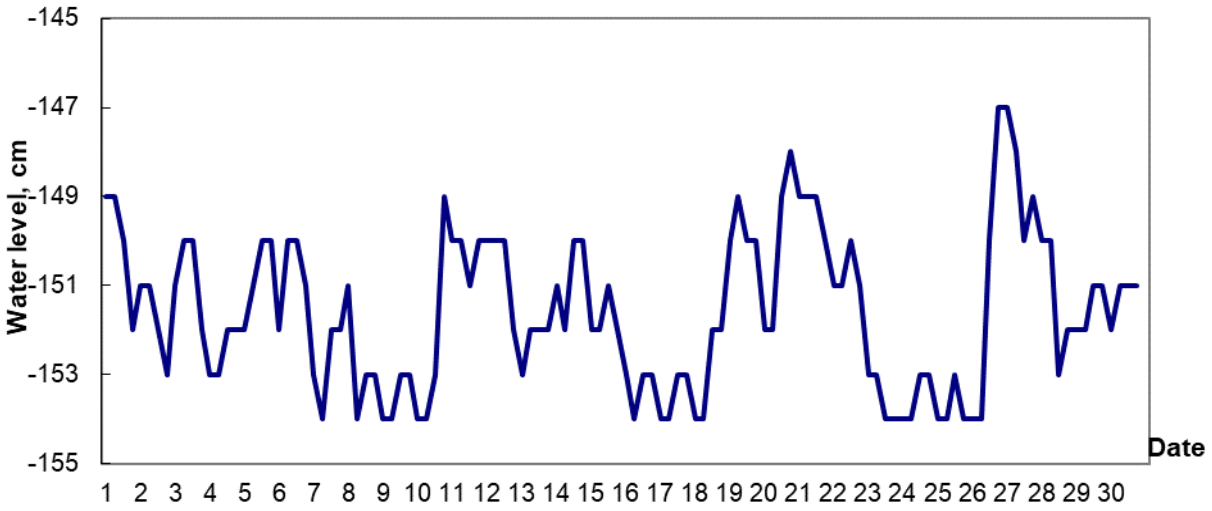
Figure. Graph of sea level changes in Fort-Shevchenko on September 27-28, 2025.

Saura



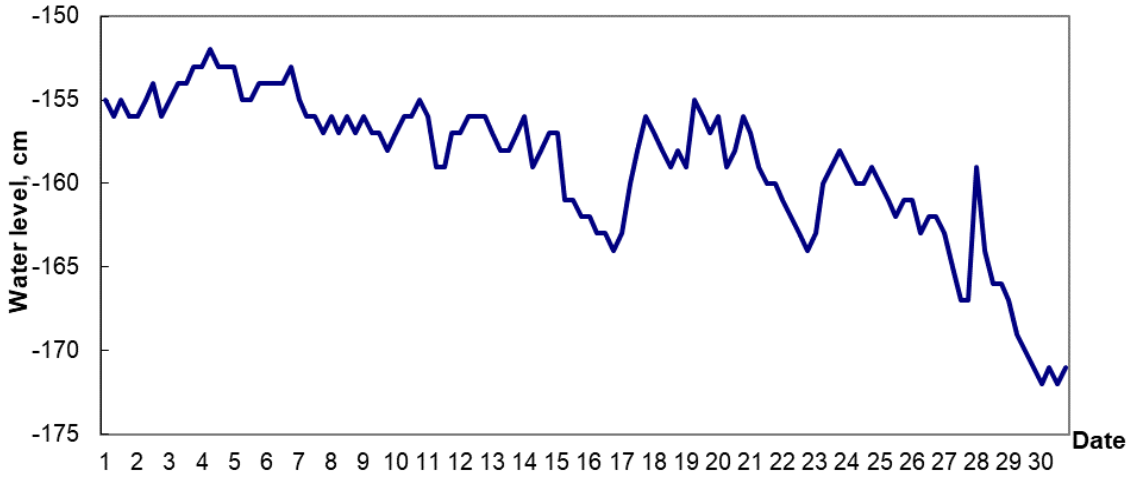
The runup and surge phenomena were not recorded. The sea level change during the month fluctuated from minus 29.67 m BS to minus 29.42 m BS.

Peschany



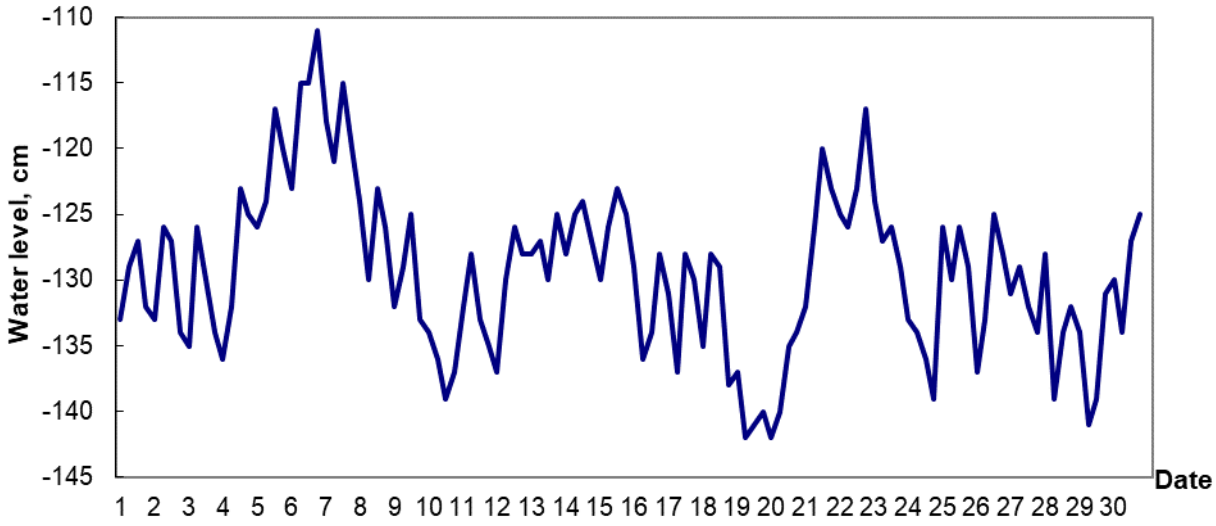
The runup and surge level fluctuations did not exceed 7 cm. The sea level change during the month varied from minus 29.54 m BS to minus 29.47 m BS.

Aktau



The runup and surge level fluctuations did not exceed 13 cm. The sea level change during the month varied from minus 29.58 m BS to minus 29.45 m BS.

Fetisovo



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
07-08.09		15	N, NE	6
20-21.09	22		N, E, NW	12

- On 7-8 September, a sea level fall by 15 cm was observed from minus 29.15 m BS to minus 29.30 m BS. The wind speed reached 6 m/s, predominantly from the north, northeast;

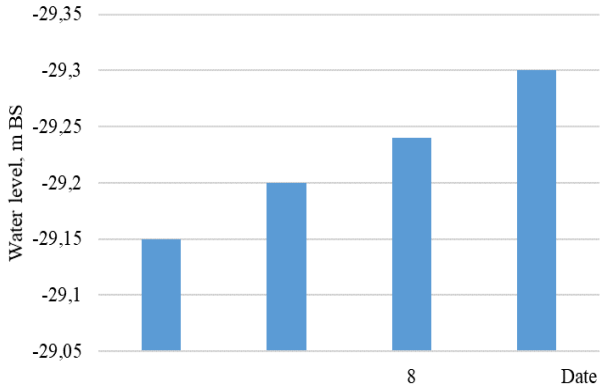


Figure. Graph of sea level changes in Fetisovo on September 07-08, 2025.

- On 20-21 September, a sea level rise by 22 cm was observed from minus 29.71 m BS to minus 29.50 m BS. The wind speed reached 12 m/s, predominantly from the north, east, northwest;

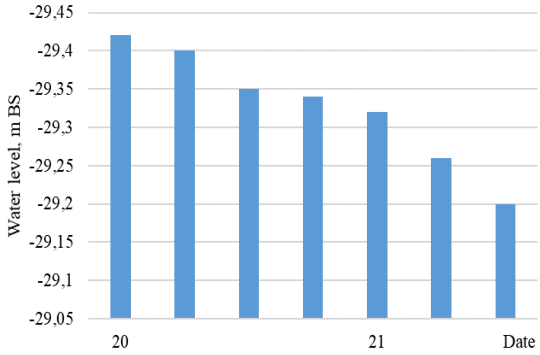


Figure. Graph of sea level changes in Fetisovo on September 20-21, 2025.

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

Address: 010000, Astana, Mangilik El Ave. 11/1, Tel. (717)2 79 83 12
e-mail: ugmikm@meteo.kz