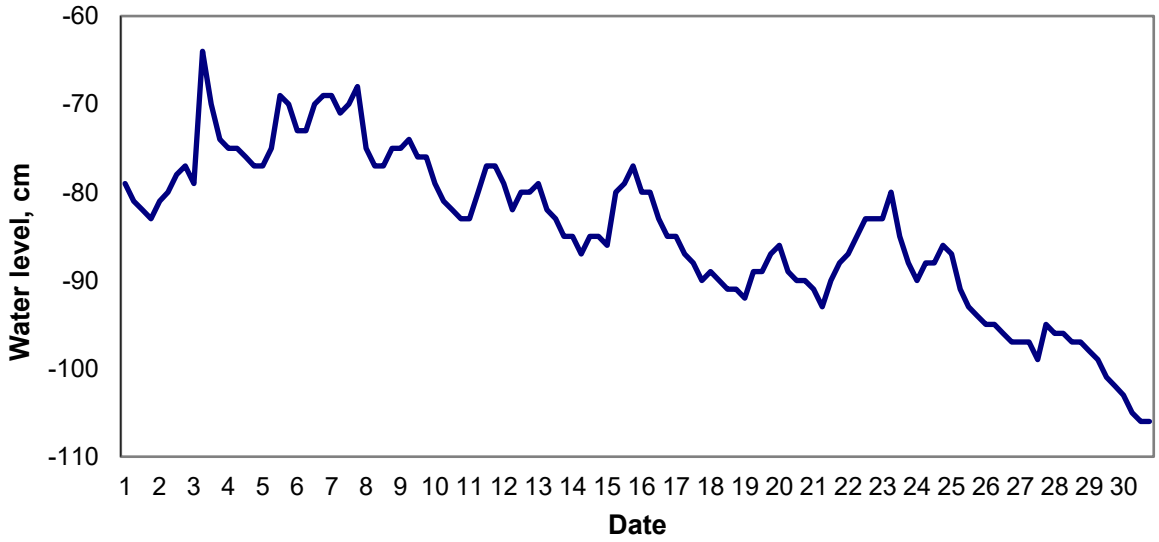
MINISTRY OF ECOLOGY AND NATURAL RESOURCES OF THE REPUBLIC OF KAZAKHSTAN
RSE «KAZHYDROMET»

RESEARCH CENTER

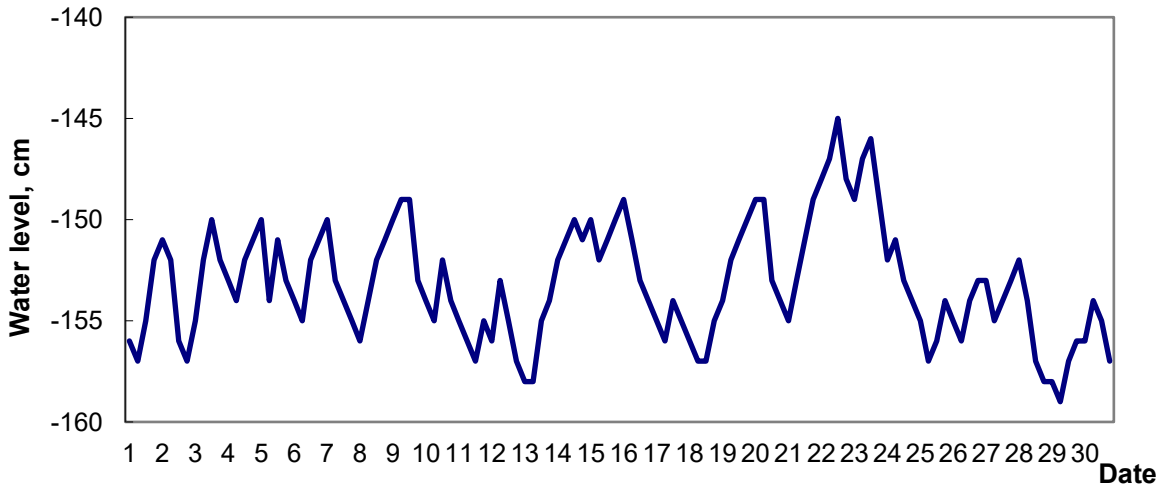
OVERVIEW OF UP SURGE AND DOWN SURGE EVENTS in November 2024

Peshnoy



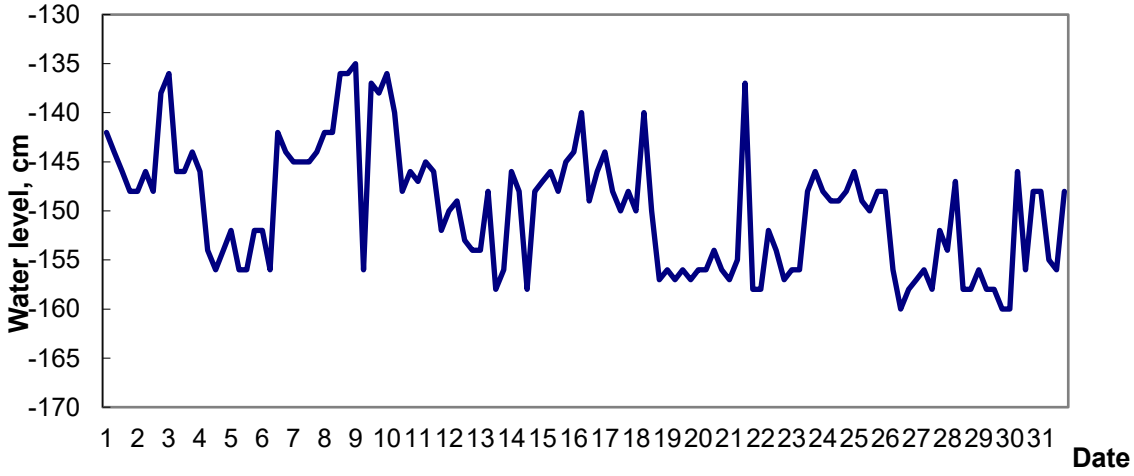
- On November 3, a sea level rise by 15 cm was observed from minus 28.74 m BS to minus 28.64 m BS. At the same time, the wind speed reached 6 m/s, predominantly north, northeast;

Kulaly, island



During this month there were no surge phenomena. The change in sea level during the month ranged from minus 29.59 m BS to minus 29.45 m BS.

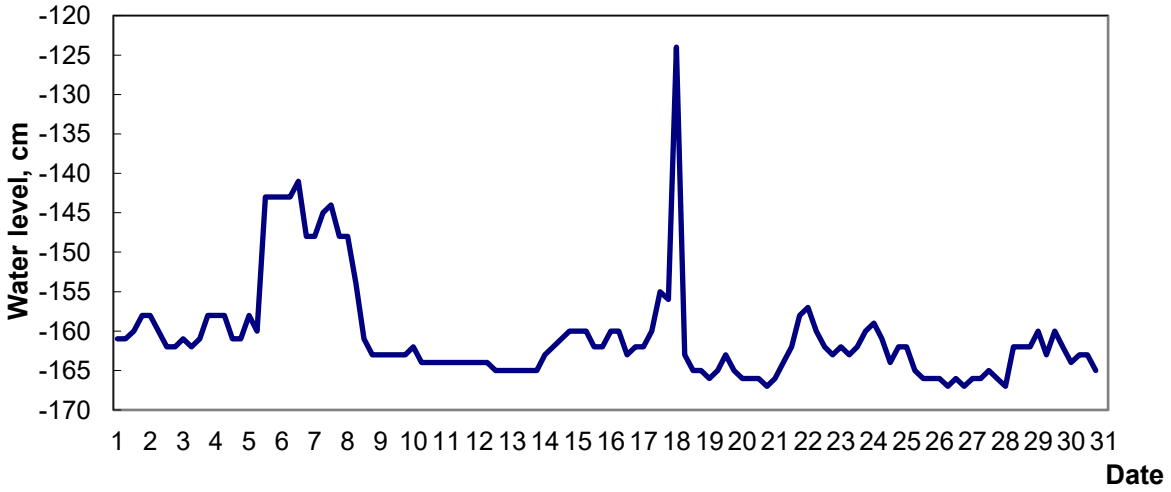
Fort-Shevchenko



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
05-06.11	-	31	northwest	20
07.11	-	22	west	14

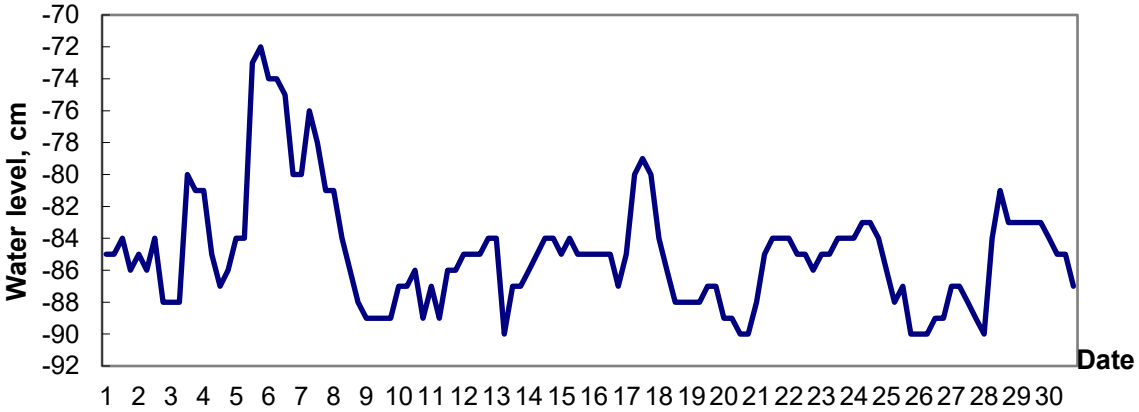
- On November 5-6, a sea level lowering by 31 cm from minus 29.45 m BS to minus 29.76 m BS. At the same time, the wind speed reached 20 m/s, mainly west-northwesterly directions;
- On November 7, a sea level lowering by 22 cm from minus 29.54 m BS to minus 29.76 m BS. At the same time, the wind speed reached 14 m/s, mainly west directions;

Saura



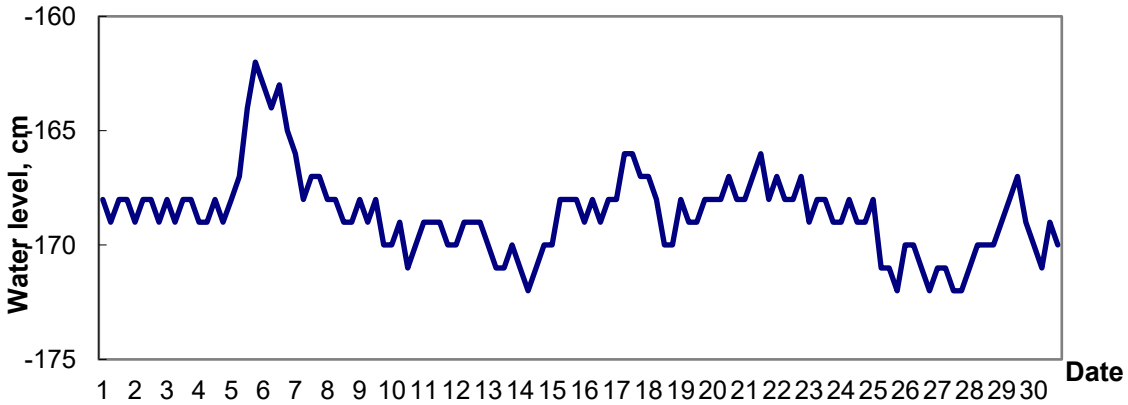
- On November 8, a sea level lowering by 15 cm from minus 29.48 m BS to minus 29.63 m BS. At the same time, the wind speed reached 6 m/s, mainly north directions;
- On November 17-18, a sea level increased by 22 cm from minus 29.56 m BS to minus 29.24 m BS. At the same time, the wind speed reached 7 m/s, mainly northwesterly directions;

Peschany



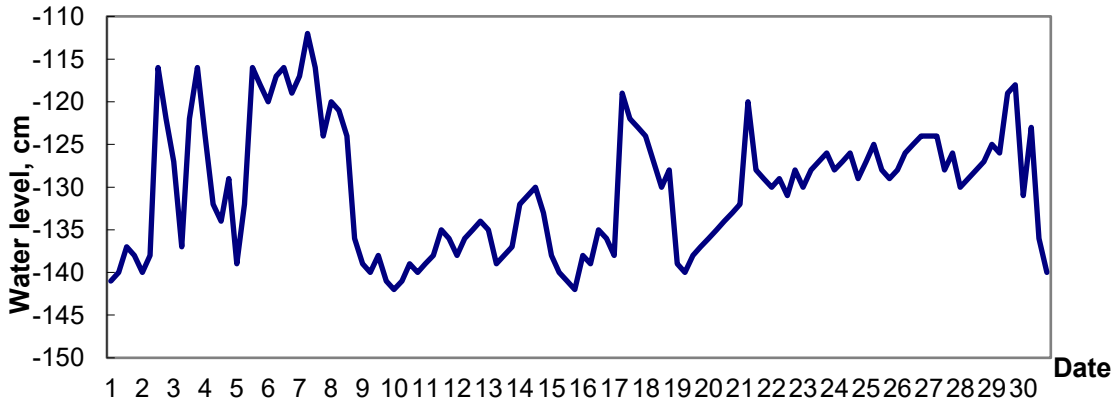
The up surge and down surge level fluctuations did not exceed 10 cm.

Aktau



During this month there were no surge phenomena. The change in sea level during the month ranged from minus 29,72 m BS to minus 29,62 m BS.

Fetisovo



Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
02.11	22		south	9
03-04.11		18	norh	11
05.11	23		east, northwest	16
17.11	23		northeast, northwest	10

- On November 2, a sea level increased by 22 cm from minus 29.38 m BS to minus 29.16 m BS. At the same time, the wind speed reached 9 m/s, mainly south directions;
- On November 3-4, a sea level lowering by 18 cm from minus 29.16 m BS to minus 29.34 m BS. At the same time, the wind speed reached 11 m/s, mainly north directions
- On November 5, a sea level increased by 23 cm from minus 29.39 m BS to minus 29.16 m BS. At the same time, the wind speed reached 16 m/s, mainly southwest directions;
- On November 17, a sea level increased by 23 cm from minus 29.38 m BS to minus 29.19 m BS. At the same time, the wind speed reached 10 m/s, mainly southwest directions;

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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