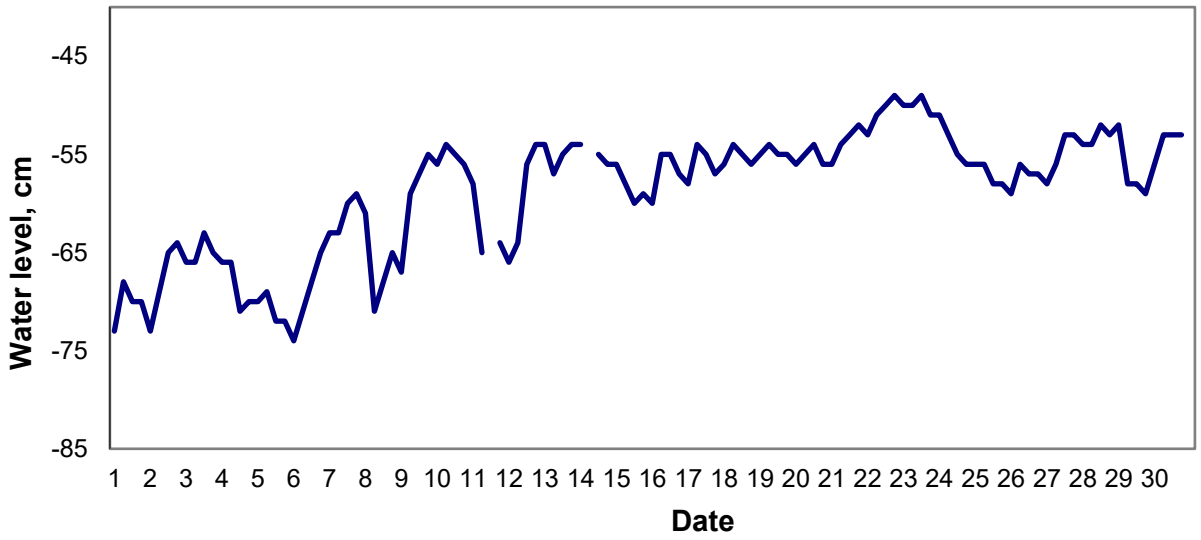
MINISTRY OF ECOLOGY AND NATURAL RESOURCES OF THE REPUBLIC OF KAZAKHSTAN
RSE «KAZHYDROMET»

RESEARCH CENTER

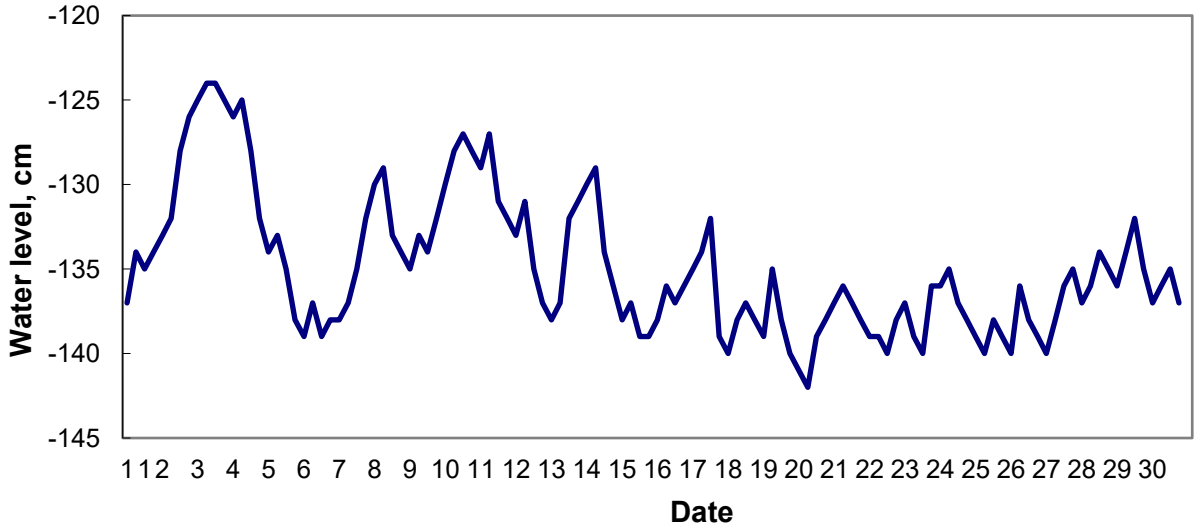
OVERVIEW OF UP SURGE AND DOWN SURGE EVENTS in September 2024

Peshnoy



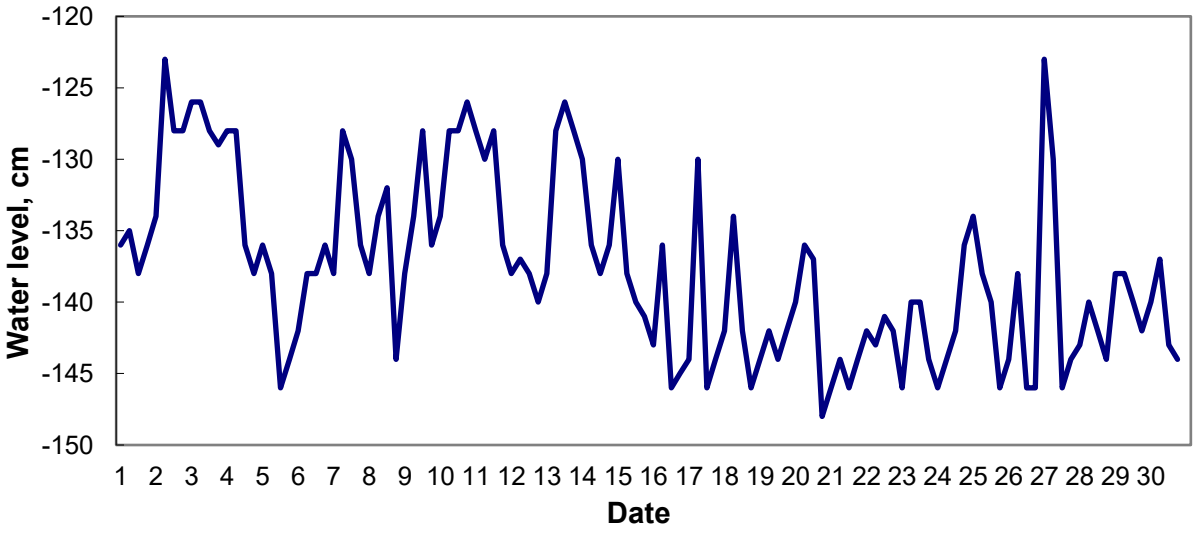
During this month there were no surge phenomena. The change in sea level during the month ranged from minus 28.74 m BS to minus 28.49 m BS.

Kulaly, island



During this month there were no surge phenomena. The change in sea level during the month ranged from minus 29.42 m BS to minus 29.24 m BS.

Fort-Shevchenko

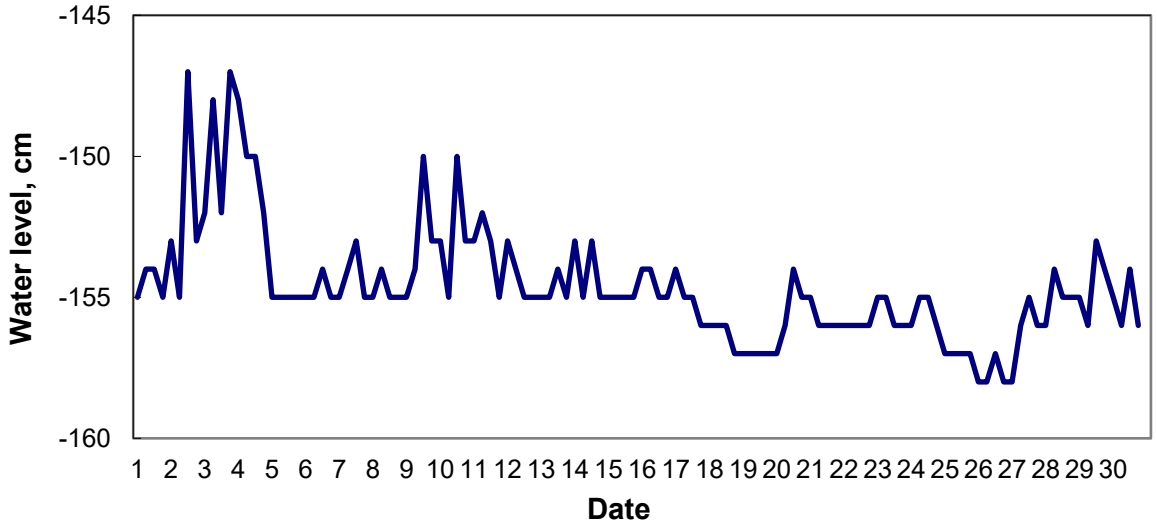


Date	Level rise, cm	Level fall, cm	Prevailing wind direction, rhumb	Maximum wind speed, m/s
01-02.09	15		southeast	15
16-17.09	16		eastern	8
26-27.09	23		east-northeast, east-southeast	7

During the month, 3 case of sea level rise was recorded:

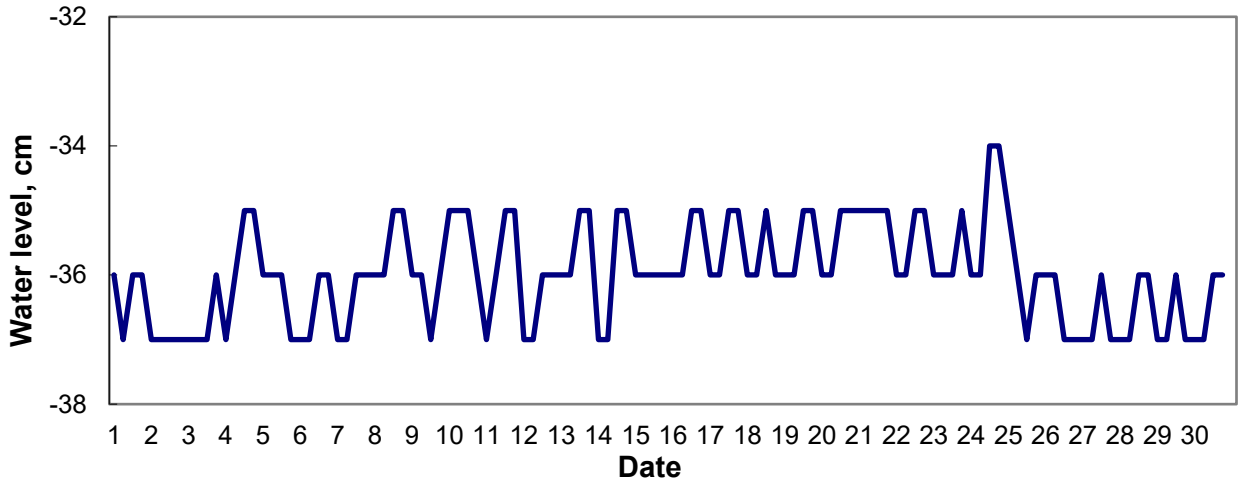
- On 1-2 September, the sea level increased by 15 cm from minus 29,38 m BS to minus 29,23 m BS. At the same time, the wind speed reached 15 m/s, mainly from southeast direction;
- On 16-17 September, the sea level increased by 16 cm from minus 29,46 m BS to minus 29,30 m BS. At the same time, the wind speed reached 8 m/s, mainly from eastern direction;
- On 26-27 September, the sea level increased by 23 cm from minus 29,46 m BS to minus 29,23 m BS. At the same time, the wind speed reached 7 m/s, mainly from east-northeast, east-southeast direction;

Saura



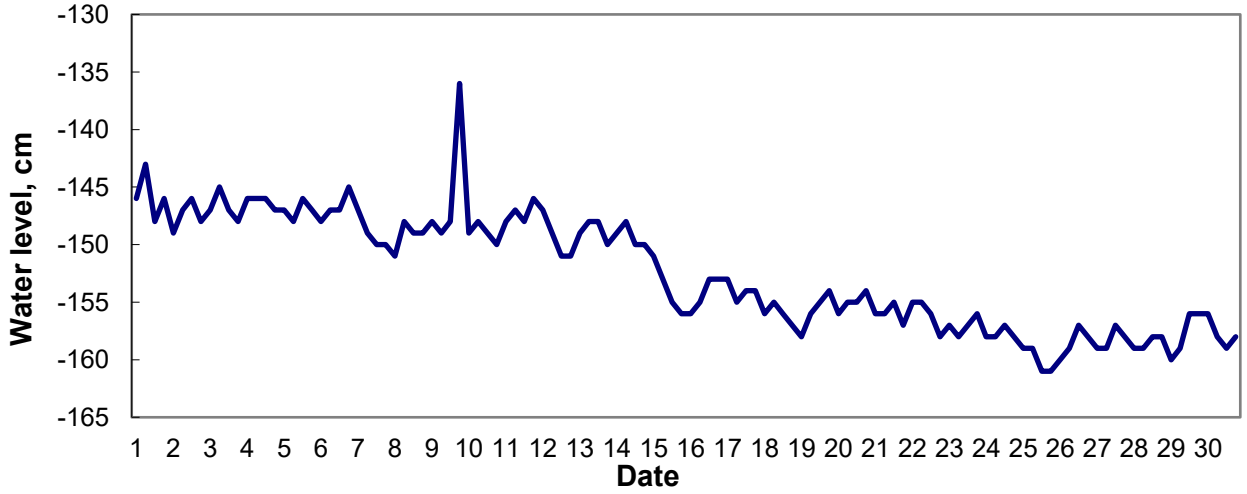
The up surge and down surge level fluctuations did not exceed 11 cm.

Peschany



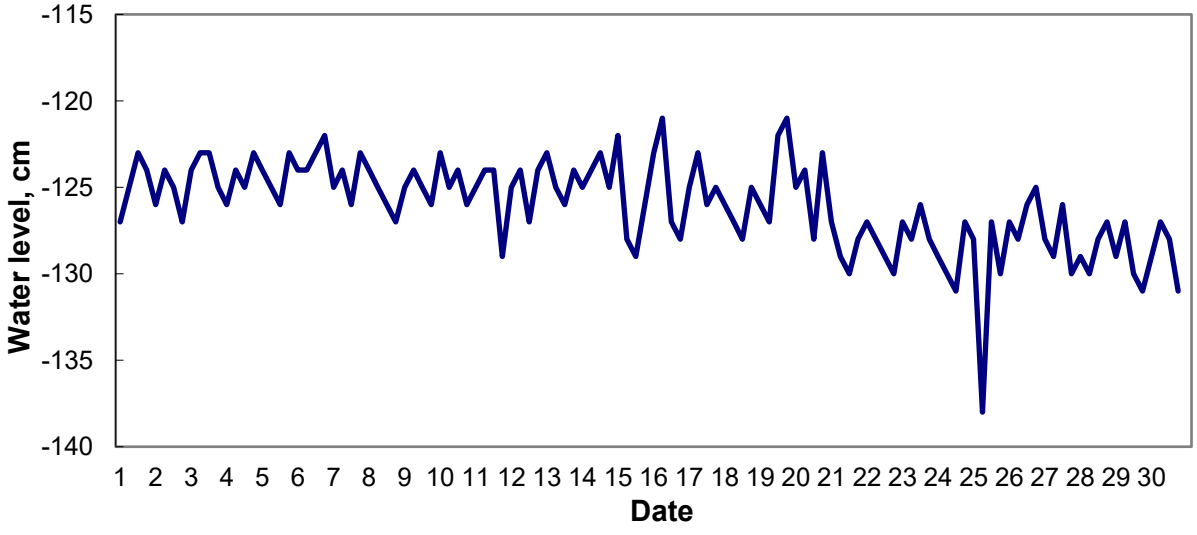
The up surge and down surge level fluctuations did not exceed 3 cm.

Aktau



During this month there were no surge phenomena. The change in sea level during the month ranged from minus 29,61 m BS to minus 29,36 m BS.

Fetisovo



During this month there were no surge phenomena. The change in sea level during the month ranged from minus 29,38 m BS to minus 29,21 m BS.

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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