



**MINISTRY OF ECOLOGY, AND NATURAL
RESOURCES OF THE REPUBLIC OF KAZAKHSTAN
«KAZHYDROMET», RSE
SCIENTIFIC RESEARCH CENTER**

CASPIAN SEA WEEKLY BULLETIN №11

17 March, 2023, Friday

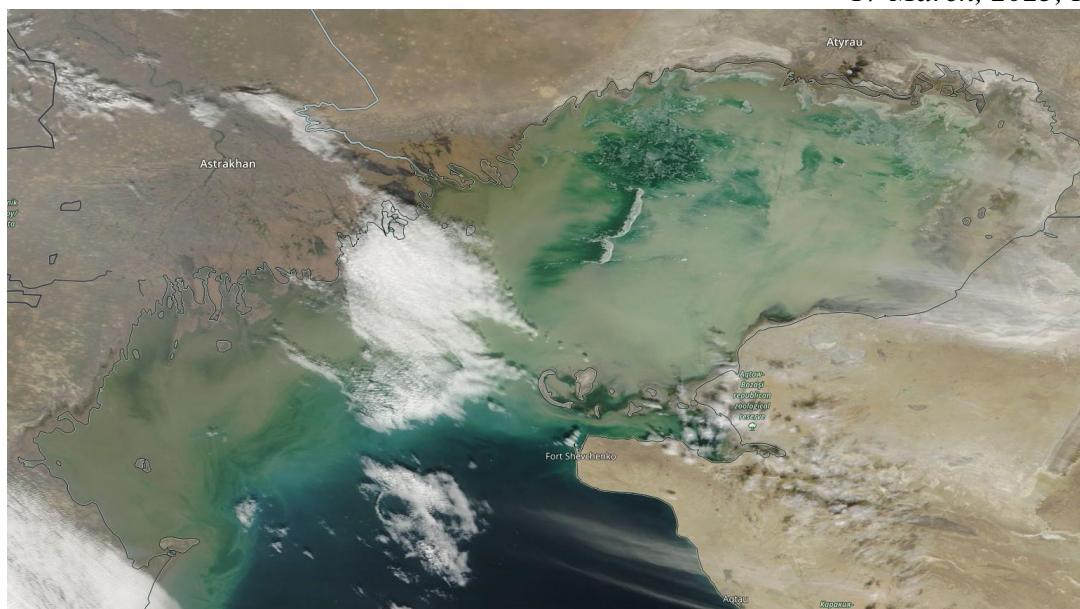


Fig.1 NAGA/GSFC space images of the Caspian Sea, March, 16, 2023

**FORECAST OF LEVEL AND SURGE PHENOMENA IN THE MIDDLE
PART OF THE CASPIAN SEA ON March 16-21, 2023**

SEA LEVEL.

In the period from March 16-21, the sea level is expected to fluctuate around the mark of minus 28.92m BS. The range of fluctuations in sea level is from minus 28.60m to minus 29.43m.

Figure 2 shows a graph of the predicted sea level values at various points in the Middle part of the Caspian Sea.

SURGE PHENOMENA.

In the area of Fort-Shevchenko, Aktau, Fetisovo and Makhachkala, surge events are not expected, sea level fluctuations will not exceed **10 cm**.

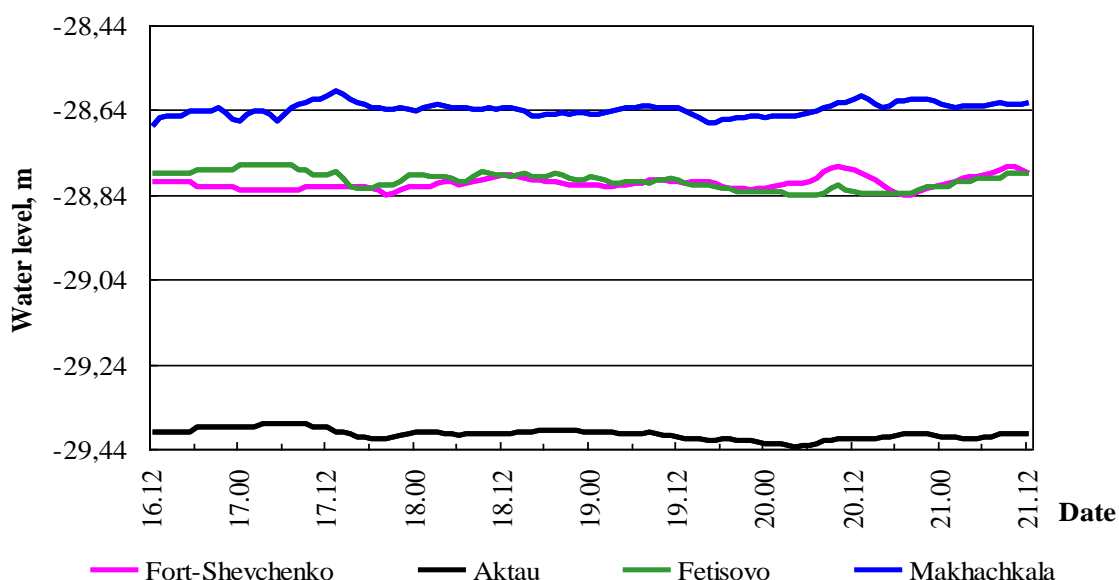


Fig .2 Forecast of sea level in the points of the Middle Caspian

FORECAST VALUES OF SEA LEVEL FLUCTUATIONS AT VARIOUS POINTS OF THE KAZAKHSTANI COAST

Point name	Maximum		Minimum		Average
	Level, sm (m BS)	date, time, GMT*	Level, sm (m BS)	date, time, GMT*	Level, sm (m BS)
Middle Part					
Fort-Shevchenko	-77 (-28,77)	2023/03/20 10:00:00	-84 (-28,84)	2023/03/17 20:00:00	-81 (-28,81)
Aktau	-138 (-29,38)	2023/03/17 03:00:00	-143 (-29,43)	2023/03/19 23:00:00	-141 (-29,41)
Fetisovo	-77 (-28,77)	2023/03/17 00:00:00	-84 (-28,84)	2023/03/20 03:00:00	-81 (-28,81)
Makhachkala	-60 (-28,60)	2023/03/17 03:00:00	-68 (-28,68)	2023/03/16 12:00:00	-64 (-28,64)

GMT* - Greenwich Mean Time

Review

Caspian Sea water stage from March 09-15, 2023

The mean sea level was minus 28,66m on the Caspian Sea shallow part covered by ice.

According to the operational data of the sea stations of Kazhydromet: Fort-Shevchenko, Aktau, Fetisovo and Roshydromet (Makhachkala), the average value of the level of the Caspian Sea, in its deep part, corresponded to minus 28.88m, the maximum - minus 28.70m, the minimum - minus 29.38m.

Review of ice conditions in the Caspian Sea, March 09-15, 2023

According to space images (Figure 1) and operational data from marine stations and posts along the northern coast of the Caspian Sea, ice destruction is observed.

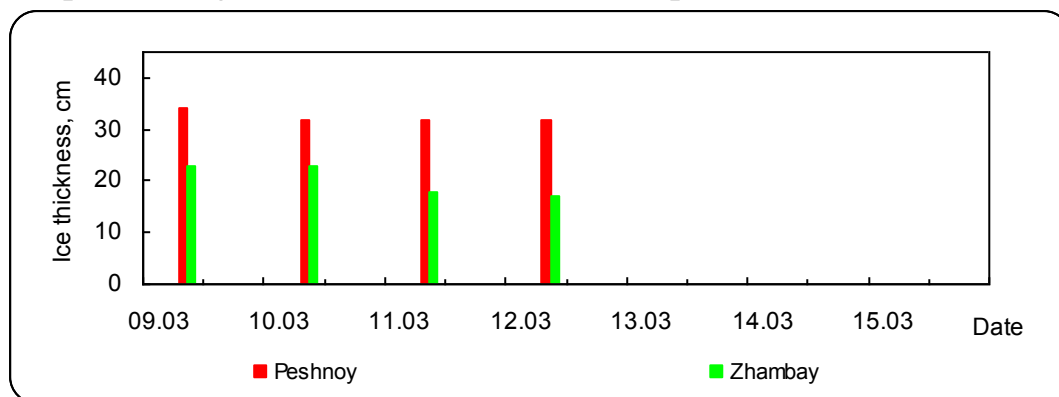


Fig. 3 Ice thickness according to operational data of marine stations

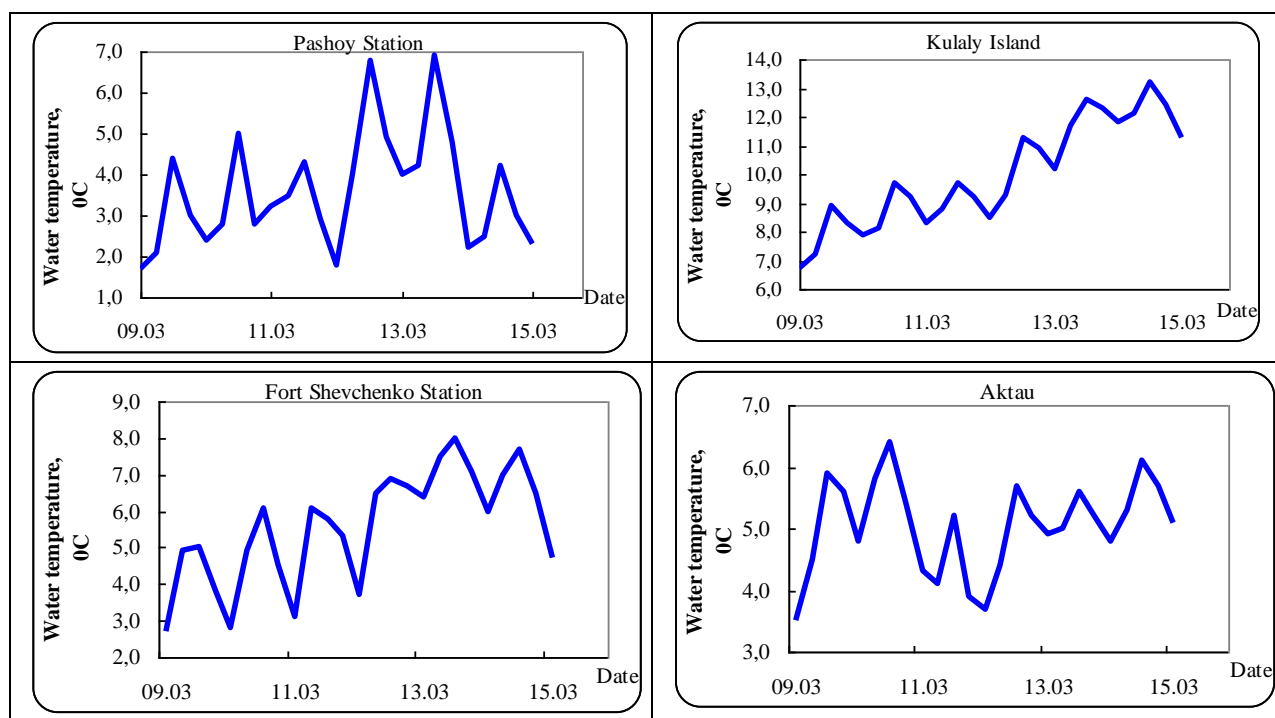


Fig. 4 Water temperature varies according operative data from Caspian Sea stations

CRITERIA OF DANGER OF THE STORM SURGES IN THE NORTHEAST COAST

	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 characteristics were computed by Hydrodynamic module MIKE 21 of Danish Hydraulic Institute. RSE "KAZHYDROMET" has the module adapted to Caspian Sea conditions. Data of sea level measurements (Fig.2-3) 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
