CASPIAN SEA WEEKLY BULLETIN №4
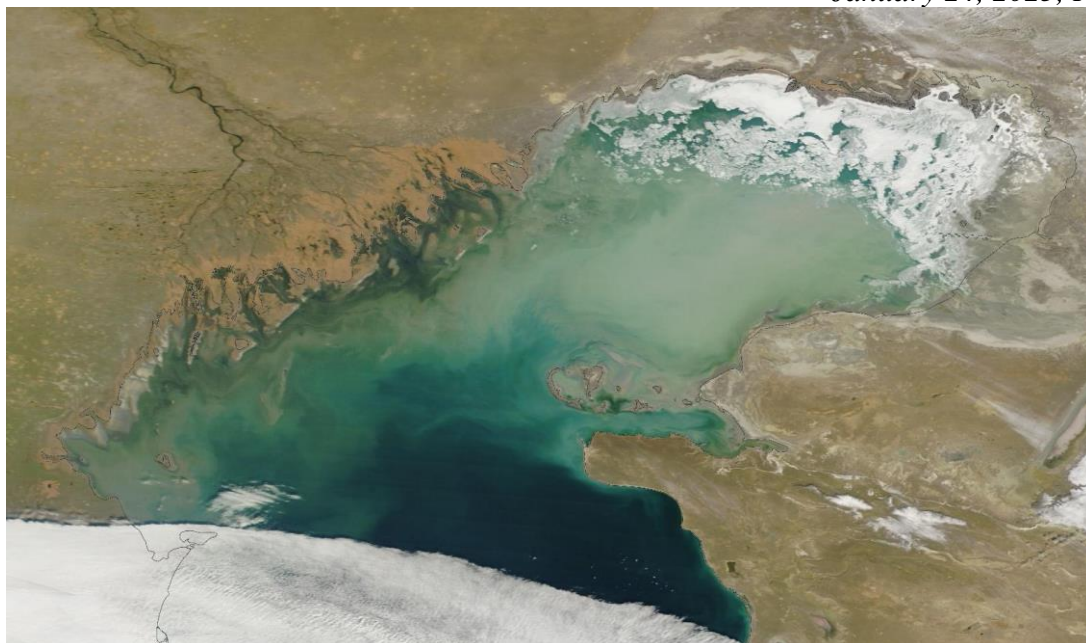
January 24, 2025, Friday

Fig.1 Space image of the Caspian Sea, January 22, 2025 (NASA/GSFC)

FORECAST OF LEVEL AND SURGE PHENOMENA IN THE MIDDLE PART OF THE CASPIAN SEA ON January 23 - 28, 2025

SEA LEVEL.

In the period from January 23 - 28, the sea level is expected to fluctuate around the mark of minus 29.35 m BS. The range of fluctuations in sea level is from minus 28.68 m to minus 29.74 m.

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

SURGERY PHENOMENA.

In the area of Fort-Shevchenko, Aktau, Saura, Kuryk, Peschanyi, Fetisovo and Makhachkala, surge events are not expected, sea level fluctuations will not exceed **14 cm**.
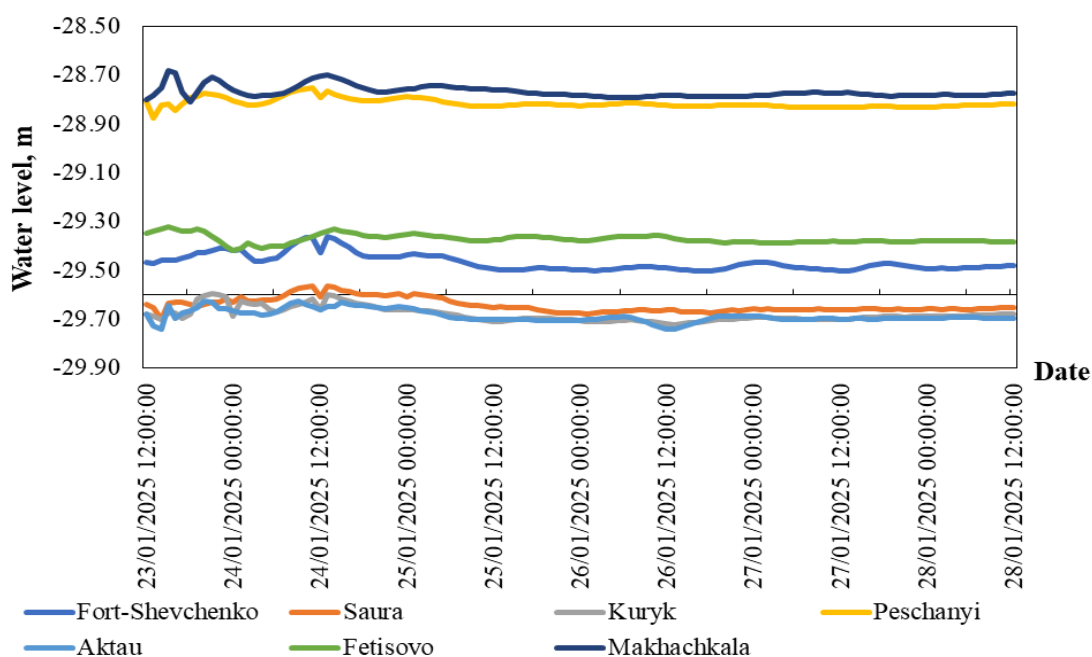
Fig .2 Forecast of sea level in the points of the Middle Caspian

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	**-136 (-29,36)**	24/01/2025 13:00:00	**-150 (-29,50)**	26/01/2025 17:00:00	**-147 (-29,47)**
Saura	**-156 (-29,56)**	24/01/2025 11:00:00	**-170 (-29,70)**	23/01/2025 14:00:00	**-164 (-29,64)**
Kuryk	**-160 (-29,60)**	23/01/2025 21:00:00	**-172 (-29,72)**	26/01/2025 13:00:00	**-168 (-29,68)**
Peschanyi	**-75 (-28,75)**	24/01/2025 11:00:00	**-88 (-28,88)**	23/01/2025 13:00:00	**-82 (-28,82)**
Aktau	**-163 (-29,63)**	24/01/2025 09:00:00	**-174 (-29,74)**	26/01/2025 12:00:00	**-169 (-29,69)**
Fetisovo	**-132 (-29,32)**	23/01/2025 15:00:00	**-142 (-29,42)**	24/01/2025 01:00:00	**-137 (-29,37)**
Makhachkala	**-68 (-28,68)**	23/01/2025 15:00:00	**-81 (-28,81)**	23/01/2025 18:00:00	**-77 (-28,77)**

GMT - Greenwich Mean Time*

REVIEW
CASPIAN SEA WATER STAGE FROM January 16 - 22, 2025

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 29.45 m, the maximum - minus 28.80 m, the minimum - minus 29.82 m.

REVIEW OF ICE CONDITIONS IN THE CASPIAN SEA,
January 16 - 22, 2025

Satellite imagery (Figure 1) and operational data from marine stations and observatories along the northern coast of the Caspian Sea indicate the formation of an ice cover.
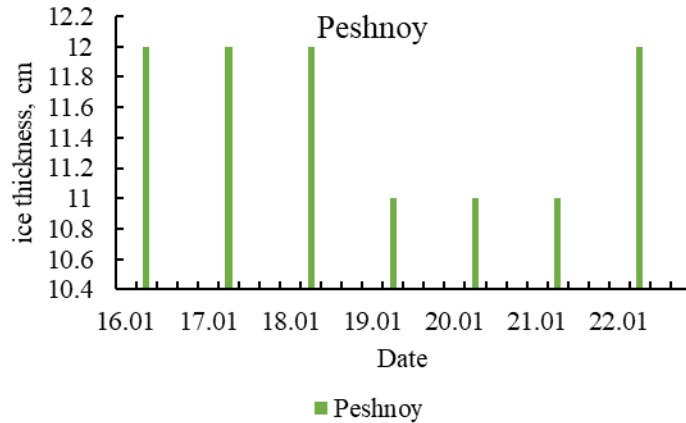

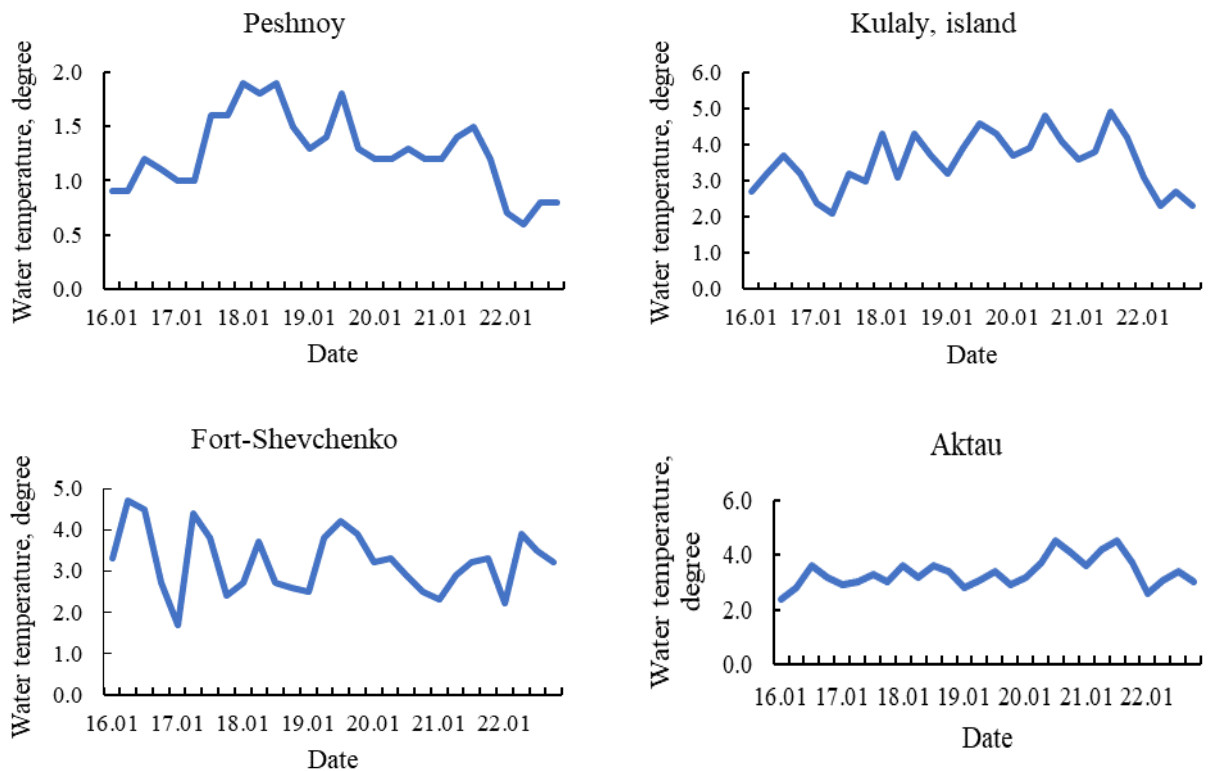*Fig. 3 Ice thickness according to operational data of marine stations*

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 calculated characteristics were obtained using the hydrodynamic module of the MIKE 21 Flow Model, adapted in RSE "Kazgidromet" 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