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

CASPIAN SEA WEEKLY BULLETIN №47

25 November , 2022, Friday

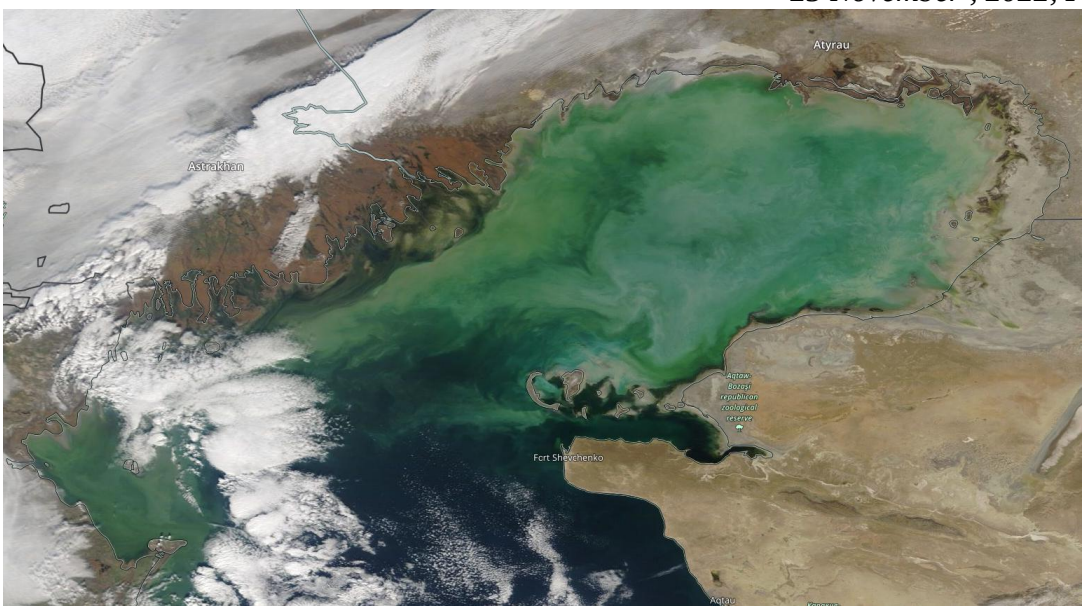

Fig.1 NAGA/GSFC space images of the Caspian Sea, November 12, 2022

FORECAST OF LEVEL AND SURGE PHENOMENA IN THE NORTHERN PART OF THE CASPIAN SEA ON NOVEMBER 24-29, 2022

SEA LEVEL.

In the period from November 24-29, the sea level is expected to fluctuate around the mark of minus 28.54m BS. The range of fluctuations in sea level is from minus 28.92m to minus 28.18m.

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

SURGERY PHENOMENA.

In the area of Peshnoy, isl. Kulaly, isl. Tyuleniy, Zhanbay, Karaton, Kalamkas surge events are not expected, sea level fluctuations will not exceed 12-17 cm.

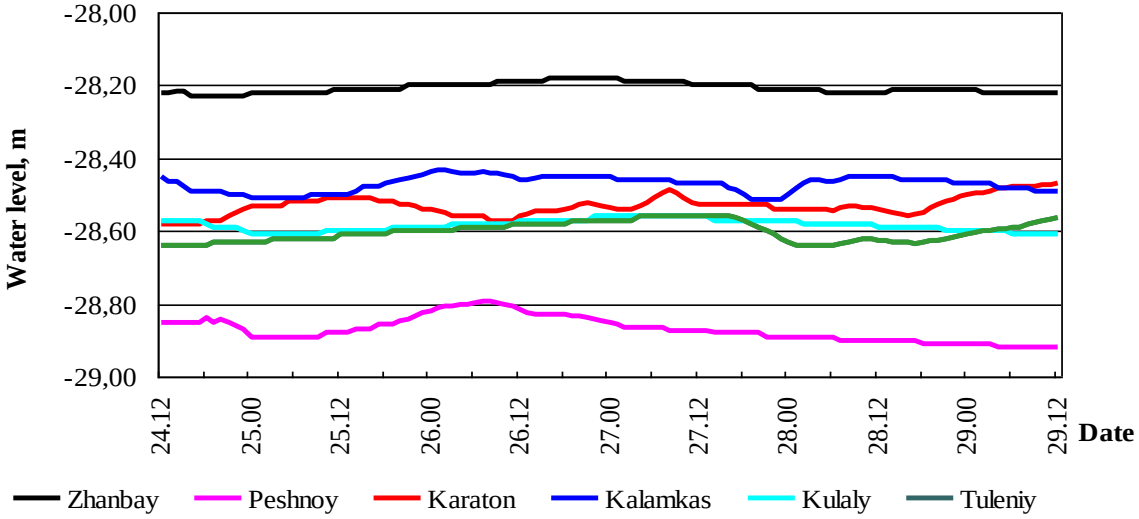

Fig .2 Forecast of sea level in the points of the Northern Caspian

FORECAST OF LEVEL AND SURGE PHENOMENA IN THE MIDDLE PART OF THE CASPIAN SEA ON NOVEMBER 24-29, 2022

SEA LEVEL.

In the period from November 24-29, the sea level is expected to fluctuate around the mark of minus 28.87m BS. The range of fluctuations in sea level is from minus 29.29m to minus 28.60m.

Figure 3 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, Fetisovo and Makhachkala, surge events are not expected, sea level fluctuations will not exceed 13 cm.

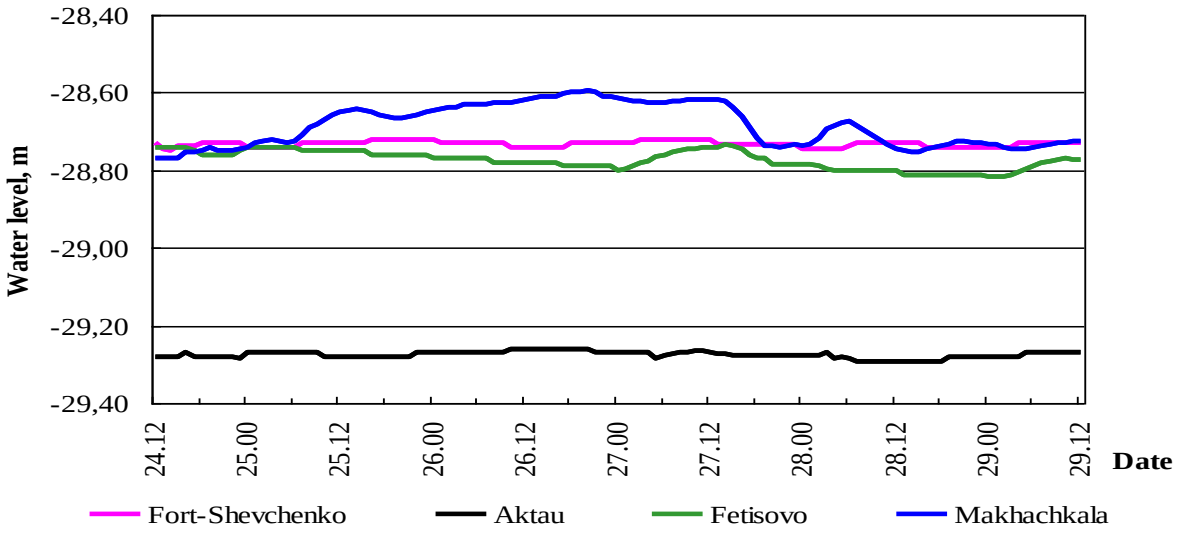

Fig .3 Forecast of sea level in the points of the Middle Caspian

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)
Northern Part					
Zhanbay	**-18 (-28,18)**	2022/11/26 16:00:00	**-23 (-28,23)**	2022/11/24 16:00:00	**-21 (-28,21)**
Peshnoy	**-79 (-28,79)**	2022/11/26 07:00:00	**-92 (-28,92)**	2022/11/29 04:00:00	**-87 (-28,87)**
Karaton	**-47 (-28,47)**	2022/11/29 11:00:00	**-58 (-28,58)**	2022/11/24 12:00:00	**-53 (-28,53)**
Kalamkas	**-43 (-28,43)**	2022/11/26 01:00:00	**-51 (-28,51)**	2022/11/25 00:00:00	**-47 (-28,47)**
Kulaly	**-56 (-28,56)**	2022/11/26 22:00:00	**-61 (-28,61)**	2022/11/25 00:00:00	**-58 (-28,58)**
Tyuleny	**-56 (-28,56)**	2022/11/27 04:00:00	**-64 (-28,64)**	2022/11/24 12:00:00	**-60 (-28,60)**
Middle Part					
Fort-Shevchenko	**-72 (-28,72)**	2022/11/25 16:00:00	**-75 (-28,75)**	2022/11/24 14:00:00	**-73 (-28,73)**
Aktau	**-126 (-29,26)**	2022/11/26 10:00:00	**-129 (-29,29)**	2022/11/28 07:00:00	**-128 (-29,28)**
Fetisovo	**-73 (-28,73)**	2022/11/27 14:00:00	**-82 (-28,82)**	2022/11/29 00:00:00	**-77 (-28,77)**
Makhachkala	**-60 (-28,60)**	2022/11/26 17:00:00	**-77 (-28,77)**	2022/11/24 12:00:00	**-69 (-28,69)**

GMT - Greenwich Mean Time*

SEA LEVEL REVIEW 17-23 November 2022

In the northern part of the Caspian Sea, according to operational data from marine stations of Kazhydromet: Peshnoy, Zhanbay, Kulaly island and Roshydromet (isl. Tyuleniy), the average sea level corresponded to minus 28.56 m, the maximum - minus 28.18 m, the minimum - minus 28.91 m.

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 28.81 m, the maximum - minus 28.67m, the minimum - minus 29.27 m.

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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