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«KAZHYDROMET», RSE
SCIENTIFIC RESEARCH CENTER**

CASPIAN SEA WEEKLY BULLETIN №11

15 March, 2024, Thursday

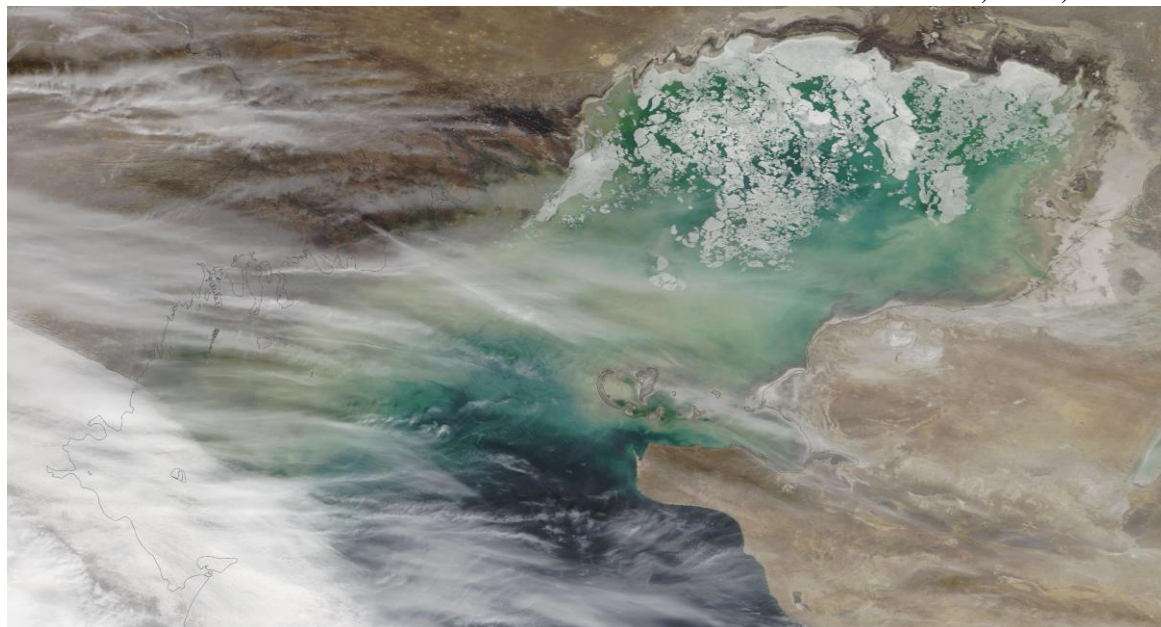


Fig.1 NASA/GSFC space images of the Caspian Sea, March 14, 2024

**FORECAST OF LEVEL AND SURGE PHENOMENA IN THE MIDDLE
PART OF THE CASPIAN SEA ON March 14 - 19, 2024**

SEA LEVEL.

In the period from March 14-19, the sea level is expected to fluctuate around the mark of minus 29.10 m BS. The range of fluctuations in sea level is from minus 28.66 m to minus 29.65 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 Aktau, Fetisovo and Makhachkala, surge events are not expected, sea level fluctuations will not exceed **14 cm**.

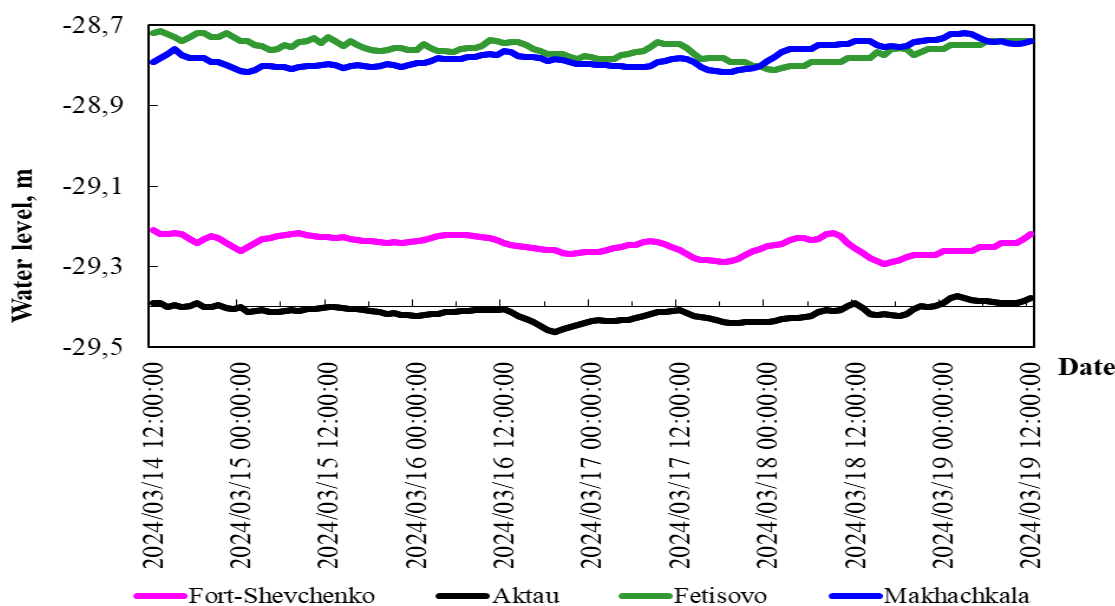


Fig. 2 Forecast of sea level in the points of the Middle Caspian

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 | -121 (-29,21) | 2024/03/15 08:00:00 | -135 (-29,35) | 2024/03/14 17:00:00 | -129 (-29,29) |
| Aktau | -156 (-29,56) | 2024/03/17 05:00:00 | -165 (-29,65) | 2024/03/15 05:00:00 | -160 (-29,60) |
| Fetisovo | -69 (-28,69) | 2024/03/17 02:00:00 | -82 (-28,82) | 2024/03/15 05:00:00 | -76 (-28,76) |
| Makhachkala | -66 (-28,66) | 2024/03/15 09:00:00 | -80 (-28,80) | 2024/03/18 01:00:00 | -73 (-28,73) |

GMT* - Greenwich Mean Time

Review

Caspian Sea water stage from March 7 - 13, 2024

The mean sea level was minus 29,17 m 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 29.17 m, the maximum - minus 28.74 m, the minimum - minus 29.63 m.

***Review of ice conditions in the Caspian Sea,
March 7 - 13, 2024***

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

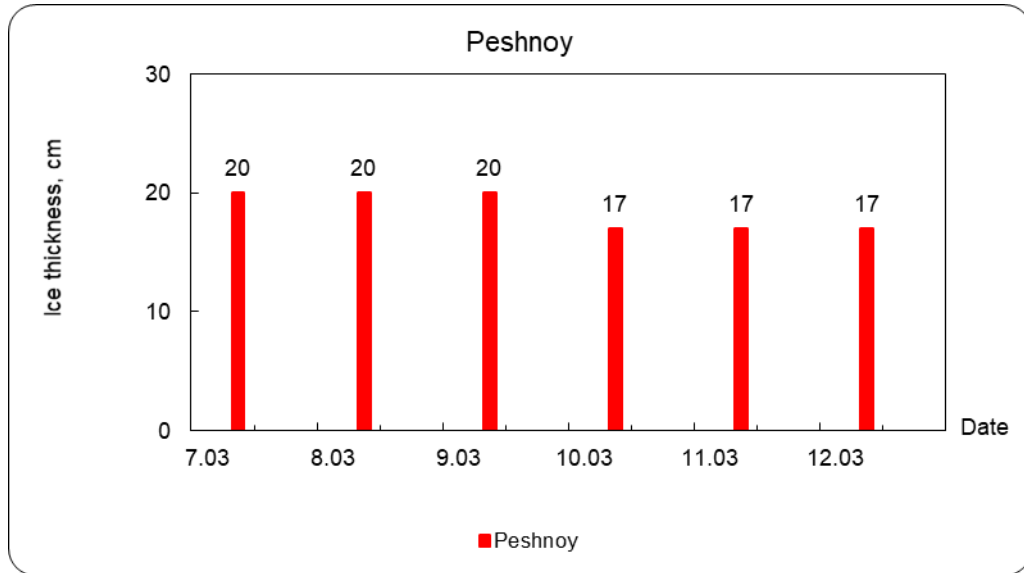


Fig. 3 Ice thickness according to operational data of marine stations

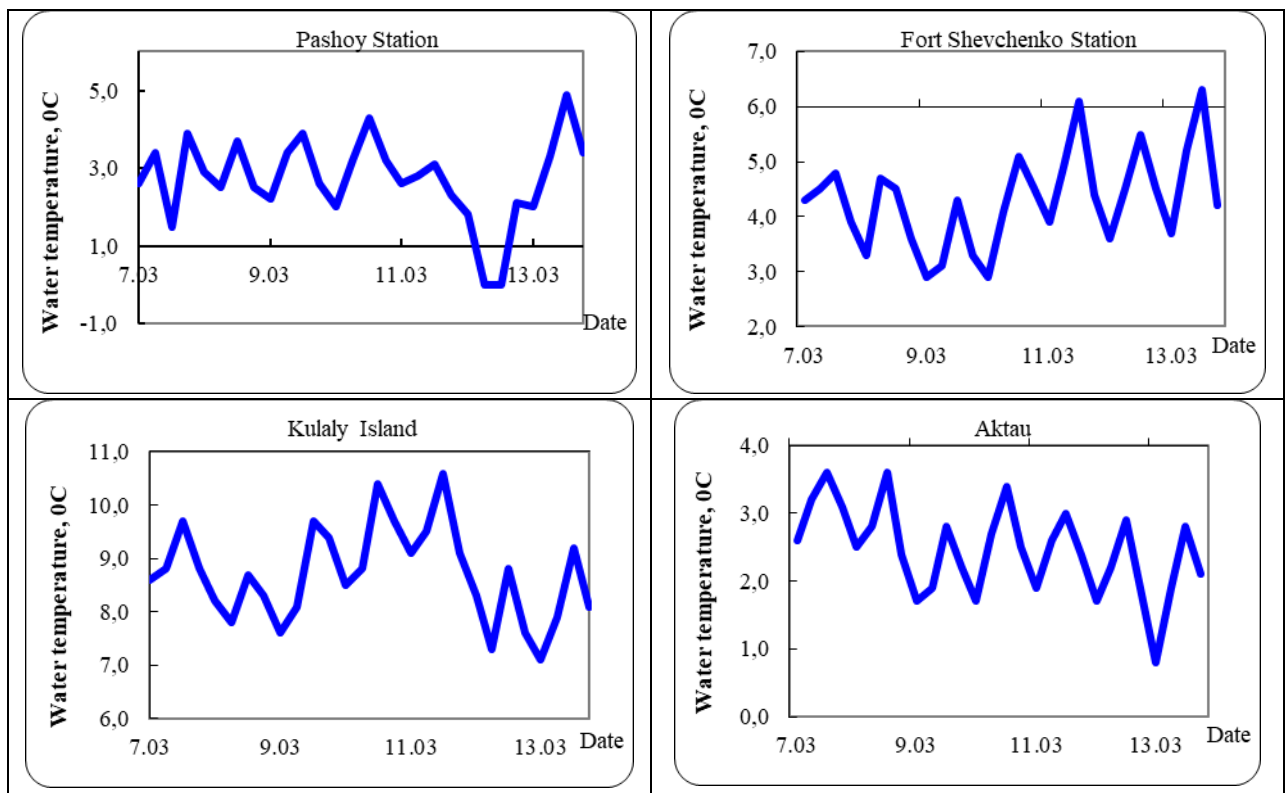


Fig. 3 Water temperature varies according operative data from Caspian Sea stations

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

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When using materials of the bulletin the link to RSE "Kazhydromet" is obligatory
