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## Variability of the frontal and eddies dynamics of the Kara Sea in the summer period

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The dynamics of fronts in the Arctic region is crucial in the formation and further variability of processes in the atmosphere and hydrosphere as a whole. However, the significant synoptic variability of the boundaries of the frontal zones and their characteristics determines the relevance of their study in a changing climate.

The article considers the relationship between the position of frontal zones and eddies structures in the Kara Sea in August and September 2019. To identify frontal zones, a single database is used, formed based on data on sea surface temperature from the Suomi NPP Viirs satellite, sea surface salinity from the NASA SMAP satellite and sea level from the international AVISO base. The cluster analysis method is used to detect frontal zones in the Kara Sea. To register the manifestations of eddies structures 358 Sentinel-1A and-1B satellite radar images obtained in the C-band at BB polarization and EW and IW shooting modes are analyzed.

It was possible to identify four classes of water in the sea area, one of which was identified as the River Plums frontal zone (RPFZ) the Ob and Yenisei. The maximum synoptic temperature gradient in the RPFZ region is 0.14°C/km, salinity is 0.12‰/km, and the level is 2 cm/km. It was found that the area of the RPFZ varies from 190K km<sup>2</sup> in August to 221K km<sup>2</sup> in September. During the research period, 1272 eddies structures were identified. It is shown that in August the number of eddies observed inside and within the boundaries of the frontal zones was twice as high as in September. In general, in the warm season of 2019 in the Kara Sea, most eddies occur in the RPFZ region. Thus, the number of eddies on the borders and inside the RPFZ in August is 30% more, and in September it is 20% more. The percentage difference is related to the wind impact over the Kara Sea, which is observed in September.

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