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Seasonal Variability in Stability and Stratification of Water Column in the Southern Caspian Deep Sea

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Abstract

In the study, seasonal variability in stability and stratification of water column in the southern Caspian Sea were assessed. The results showed that the most variations were occurred during upper 100 m layer. A seasonal thermocline was detected between 20 and 50 m depth in summer at a temperature gradient of 16°C. Maximum vertical gradient of temperature was 0.4815 C/m between 28-45 m depths in November and the minimum value was 0.05 C/m from surface to 25 m depth in March. For the same time and location, the maximum vertical gradient of density was 0.1218 per meter and its minimum was around 0.009 per meter. The vertical salinity gradient with amounts of 0.0138 in August and 0.0215/m in November were observed. The vertical variations in density agree with variations of temperature in water column, and a pycnocline was observed at the location of the thermocline. The maximum stability was calculated about 1.462×10^{-2} s^{-2} for thermocline layer in April and the minimum was around 4.163×10^{-8} s^{-2} in deep water area in March.

Keywords: *Stability, Thermal stratification, Water masses, Vertical structure, Caspian Sea.*