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(Research Article)
Study of sound speed profile and formation of sound channels in deep waters of North Indian Ocean

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Abstract

In this research, an attempt has been made to observe the seasonal changes of hydrophysical variables by using temperature and salinity data relative to depth during a 20-year statistical period in the Indian Ocean and calculating the sound speed profile. Using Mackenzie's formula, the speed of sound in the studied area has been calculated and analyzed. Seasonal changes in the sound profile of the Indian Ocean occur regularly throughout the year. These changes are mostly related to factors such as ocean currents, weather conditions and changes in water level. By drawing the profiles of these data, it can be seen that sea water has density stratification and seasonal and permanent temperature gradients and as a result, seasonal and permanent acoustic channels are formed in the deep ocean.

Keywords: Density stratification, Sound channel, Sound speed, Indian Ocean, Temperature gradient.

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