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Oxygen isotope-salinity relationship along a meridional transect (67°E) in the Western Indian Ocean

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A study of stable oxygen isotope (δ^{18}O) in water and salinity along a meridional transect (67˚E from 3˚S to 25˚S) in the Western Indian Ocean was carried out during April 2018. The relative water fraction of discrete water masses can be determined based on oxygen isotope and salinity relationships. In the study area, the range of oxygen isotopic values, δ^{18}O was shown from -0.09 to 0.64‰ṪThe relationship between salinity and δ^{18}O values at surface water (0-100 m depth) indicate the typical trend related to surface evaporation/precipitation. Mid latitude region between 5˚S and 17˚S shows low salinity and δ^{18}O, northern and southern region of the study area show high salinity and δ^{18}O. These surface δ^{18}O signatures were similar to previous studies. In the intermediate layer (100-1000 m depth), a linear correlation between salinity and δ^{18}O is shown. Deep interior deeper than 2000 m also shows another linear relationship between salinity and δ^{18}O with similar salinity but δ^{18}O from -0.09 to 0.11‰İn addition, the distinct water masses along a 67˚E of the Indian Ocean were identified based on both the δ^{18}O -salinity relationships and T-S diagram.