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Influence of subsurface tropical instability waves on sea surface temperature in the tropical Atlantic

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Tropical Instability Waves (TIWs) at the equatorial Atlantic Ocean lead to SST cooling due to enhanced mixing and heat fluxes above the EUC core. This phenomenon has been studied predominantly at the equator and to the north, where TIWs are most pronounced. However, a recent study has shown the presence of subsurface TIWs in the Atlantic Ocean, which frequently occur to the south of the equator. As TIW induced subsurface mixing leads to SST cooling at the equator, we suspect a similar cooling may occur in the Southern Hemisphere due to the presence of subsurface TIWs. Using one decade of high-resolution ICON ocean simulations, we investigate such effect of subsurface TIWs in the southern hemisphere on SST in the tropical Atlantic Ocean. The analysis of all terms of the mixed layer heat budget allows for the investigation and quantification of the processes involved in subsurface TIW induced SST changes.