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## Seasonal and Interannual Variability of the South Indian Ocean Sea Surface Salinity Maximum

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The sea surface salinity (SSS) maximum of the South Indian Ocean (the SSISS-max) is a large, oblong, high-salinity feature centered at 30degS, 90degE, at the center of the South Indian subtropical gyre. It is located poleward of a region of strong evaporation and weak precipitation. Using a number of different satellite and in situ datasets, we track changes in this feature since the beginning of the Argo era in the early 2000's. The centroid of the SSISS-max moves seasonally north and south, furthest north in late winter and farthest south in late summer. Interannually, the SSISS-max has moved on a northeast-southwest path about 1500 km in length. The size and maximum SSS of the feature vary in tandem with this motion. It gets larger (smaller) and saltier (fresher) as it moves to the northeast (southwest) closer to (further from) the area of strongest surface freshwater flux. The area of the SSISS-max almost doubles from its smallest to largest extent. It was maximum in area in 2006, decreased steadily until it reached a minimum in 2013, and then increased again. The seasonal variability of the SSISS-max is controlled by the changes that occur on its poleward, or southern, side, whereas interannual variability is controlled by changes on its equatorward side. The variations in the SSISS-max are a complex dance between changes in evaporation, precipitation, wind forcing, gyre-scale ocean circulation and downward Ekman pumping. Its motion correlated with SSS changes throughout the South Indian Ocean and is a sensitive indicator of changes in the basin's subtropical circulation.