

# High Resolution Modelling of Arabian Sea Mini Warmpool

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Before the onset of southwest monsoon, a large warm pool with high Sea Surface Temperature (SST) forms in the northern Indian Ocean during March-May. The core of this warm pool, known as the Arabian Sea mini warm pool (ASmWP), forms in southeastern Arabian Sea (SEAS) and provides a favourable setting for the formation of monsoon onset vortex. An Ocean General Circulation Model (OGCM) of the Indian Ocean with high horizontal (0.25Deg X 0.25Deg) and vertical (40 levels) resolution is used to study the dynamics and thermodynamics of the ASmWP. The model is able to simulate the seasonal cycle of temperature and salinity quite realistically with climatological forcing. The model also reproduces the intrusion of low-saline waters from Bay of Bengal (BoB) to SEAS and the temperature inversions observed in SEAS. The simulated currents and sea surface height compares very well with the observations. The Lakshadweep High (LH) and the associated downwelling process is well captured by the model. Several numerical experiments have been carried out by modifying the forcing fields and the initial condition to understand the processes that lead to the formation of ASmWP. These experiments suggest that the surface heat flux is the most crucial process that lead to the formation of the ASmWP.