



## **Changes in the wind stress variation with the warm pool SST increase over the western Pacific**

Yoon-Kyoung Lee (1), Sang-Wook Yeh (2), MinHo Kwon (3), and Byung-Kwon Moon (4)

(1) KIOST, Korea, Republic Of (ykle77@kiost.ac), (2) Hanyang University, Korea, Republic Of (swyeh@hanyang.ac.kr), (3) KIOST, Korea, Republic Of (mhkwon@kiost.ac), (4) Chonbuk National university, Korea, Republic Of (moonbk@jbnu.ac.kr)

The western Pacific warm pool is conventionally defined as an area where SST is higher than 28C. SST values exhibits a simple thermodynamic energy balance between evaporative heat loss and radiative energy input. Ocean dynamics in the warm-pool act on the eastward expansion of warm SST through equatorial wave-induced zonal advection, and it also plays a key role to maintain the warm-pool SST through the poleward Ekman transport at the surface layer. The strong east-west migration of the warm-pool in the equatorial western Pacific is closely linked to surface current variation driven by the ENSO-related surface winds. Anomalous easterly (westerly) trade winds force the thermocline depth. The trade winds also induce the Ekman upwelling associated the Coriolis effects, which brings the cold water to surface layer in the eastern Pacific. Recent studies have suggested that the warm-pool SST is increasing over the last century. Warmer SST may change surface winds, which in turn change ocean currents connecting the western tropical Pacific Ocean with the eastern tropical Pacific Ocean. In this study, we examine long-term changes in the center of the wind stress with the SST increase in the warm-pool region for the period 1950-2011. The SSTs are obtained from the Hadley Centre SST dataset, ERSST (Extended Reconstructed SST v3b), SODA (Simple Ocean Data Assimilation, version 2.2.4) data set.