



Sea surface salinity variations in the Maritime Continent region and the relationships with monsoon, El Nino, and ocean currents

Tong Lee and Severine Fournier

NASA Jet Propulsion Laboratory, MS 300-323, Pasadena, California, United States (tong.lee@jpl.nasa.gov)

Variations of sea surface salinity (SSS) in the Maritime Continent (MC) region have important implications to ocean circulation and potentially to air-sea interaction. Systematic monitoring of salinity changes in the MC region has been extremely challenging due to the complicated geometry and other factors. This has hindered our understanding of freshwater changes in the MC region, the relationships with climate variability and the water cycle, and the potential implications to climate prediction from sub-seasonal to interannual time scales. NASA's Soil Moisture Active Passive (SMAP) satellite has been providing sea surface salinity (SSS) measurements at 40-km spatial resolution and 8-day repeat cycle since April 2015. Here we examine seasonal-to-interannual variations of SSS in the MC region using SMAP SSS in relation to other satellite observations, including precipitation and ocean surface currents. The analysis results illustrated the relationships of SSS variations with monsoonal forcing in the northern and southern parts of the MC region, the effects of the 2015-16 El Nino, and observational evidence for the upper-ocean "freshwater plug" effect on the Indonesian throughflow.