

Migration of Sheyshelles-Chagos thermocline ridge (SCTR) during the CINDY/DYNAMO field campaign

Toshi Shinoda (NRL-Stennis), Tommy Jensen (NRL-Stennis), Maria Flatau (NRL-Monterey), Sue Chen (NRL-Monterey), Weiqing Han (Univ. Colorado), Chunzai Wang (NOAA-AOML)

Because of the shallow main thermocline in the Sheyshelles-Chagos thermocline ridge (SCTR), large SST changes due to surface forcing fields are often observed in this region, and thus ocean variability in the SCTR may largely impact atmospheric convection. During the CINDY/DYNAMO field campaign, meridional migration of SCTR is observed. Processes that control the SCTR migration are examined by the analysis of SODA (Simple Ocean Data Assimilation) and COAMPS experiments. During early September 2011, the shallowest thermocline in the CINDY/DYNAMO observational area (around 80°E) is located near 9°S. However, in early January 2012, the minimum thermocline depth is found around 5°S-6°S. This northward migration of SCTR during this period is consistent with the seasonal cycle derived from 60 years of SODA analysis. The analysis of COAMPS suggests that variations of local Ekman pumping associated with the MJO significantly influence the location of SCTR in October-November 2011. The impact of reflected Rossby waves originally generated from Kelvin waves forced by westerly winds associated with the MJO event in December on the SCTR thermocline structure is further discussed.