

Interannual Variability in SST off Bangladesh

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Oceanic variability off Bangladesh is one of the environmental factors which can impact on the local community. For example, Hashizume et al. (2011) pointed out that the number of cholera patients increases in Dhaka, which is populated by 15 million people and the largest city in Bangladesh, when sea surface temperature (SST) off Bangladesh rises. This study examines interannual SST variability in the coastal regions off Bangladesh, which has not attracted much attention in climate sciences so far. We detect a significant interannual SST variability off Bangladesh in two different satellite datasets (NOAA OI SST and TMI SST) and a high-resolution ocean general circulation model driven by a reanalysis dataset. The SST variability is trapped near the coast, amounts to 0.5 to 1.0 degrees Celsius in magnitude, and peaks in the boreal winter. The two observational datasets and the model results show consistency in the spatial and temporal patterns of SST variability, which gives credibility to the detected phenomenon. A statistical analysis shows that SST off Bangladesh tends to be high in the year next to El Nino and in the year of negative Indian Ocean Dipole events, suggesting those climate modes as possible drivers. We are conducting a mixed layer heat budget analysis using the model output, a preliminary result of which shows that a thick barrier layer caused by the freshwater supply from the Ganges plays a role in the generation of the SST variability. Details of the mixed layer heat budget analysis will be reported in the meeting.