

## Propagation of Intraseasonal Coastal Kelvin Wave in the Bay of Bengal and Its Impact on Mesoscale Eddies during Contrasting Monsoon Years

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Propagation of intraseasonal Kelvin wave through equatorial and coastal waveguide of Bay of Bengal (BoB) is studied using daily altimeter data during contrasting Indian summer monsoon (ISM) years. Propagation of Kelvin wave is found to be weak in the coastal waveguide of BoB during pre-monsoon and monsoon season of deficit ISM years than that of normal ISM years. Ekman transport associated with the Wind stress over the eastern BoB is found to oppose the propagation of intraseasonal Kelvin wave during and one month before the deficit month of deficit years. This study also analyzed total eddy area and surface eddy kinetic over the BoB. The eddies are detected using Okubo-Weiss method. It is observed that in deficit ISM years eddy activities over the northern BoB are reduced 2-3 months before and during the rainfall deficit months. The decrease in Kelvin wave activities in the coastal waveguide of BoB reduces the radiation of Rossby wave from it, hence responsible for the reduction in eddy activity over the region. This study suggests that the heat content and the air-sea interaction processes over the BoB will be modified during the deficit ISM years remotely by the equatorial winds through coastal Kelvin waves.