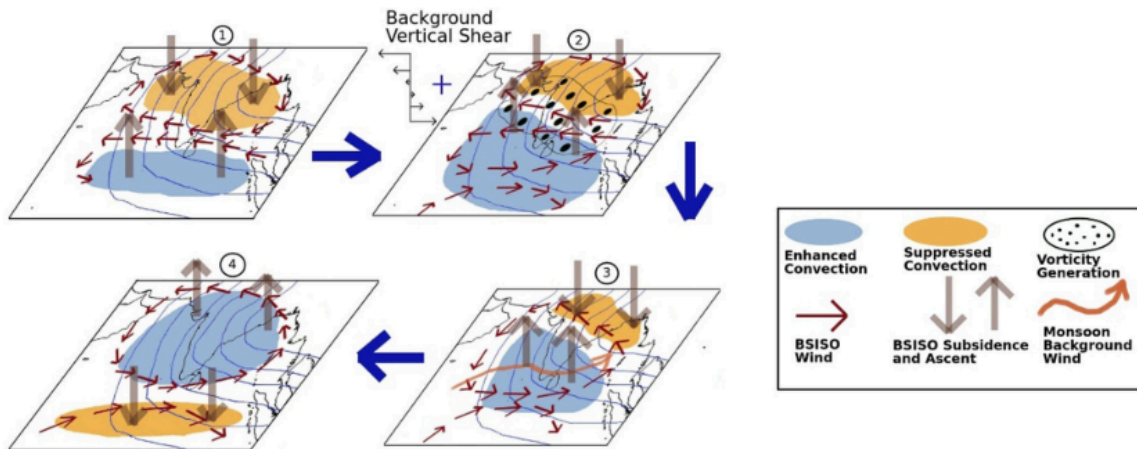


Northward Propagation of the Boreal Summer Intraseasonal Oscillation



The Boreal Summer Intraseasonal Oscillation (BSISO) is a pronounced mode of tropical variability. We show that northward propagation of this mode over India occurs in multiple stages after convection is initiated over the equatorial Indian Ocean. First, the convection moves into the southern Arabian Sea (AS) due to moistening of the free troposphere via horizontal BSISO anomalous winds acting on the background moisture distribution, and forms a northwest-southeast (NW-SE) oriented convection band. Subsequently, in the presence of an easterly vertical shear of monsoon winds and meridional gradient of anomalous vertical velocity, a NW-SE oriented tilting term is generated that results in a tilted gyre north of the existing convective anomaly and south-easterly BSISO winds over the South Asian landmass. In the second stage, these winds tap the ambient north-westward moisture gradient and help move the convection further north over land. Moreover, the background winds advect anomalous moisture to initiate convection over the Bay of Bengal. Thus, the BSISO is a horizontal advection driven moisture mode within a vertically sheared background. Ghatak & Sukhatme, *Journal of Geophysical Research*, DOI:10.1029/2024JD041413, 2025.