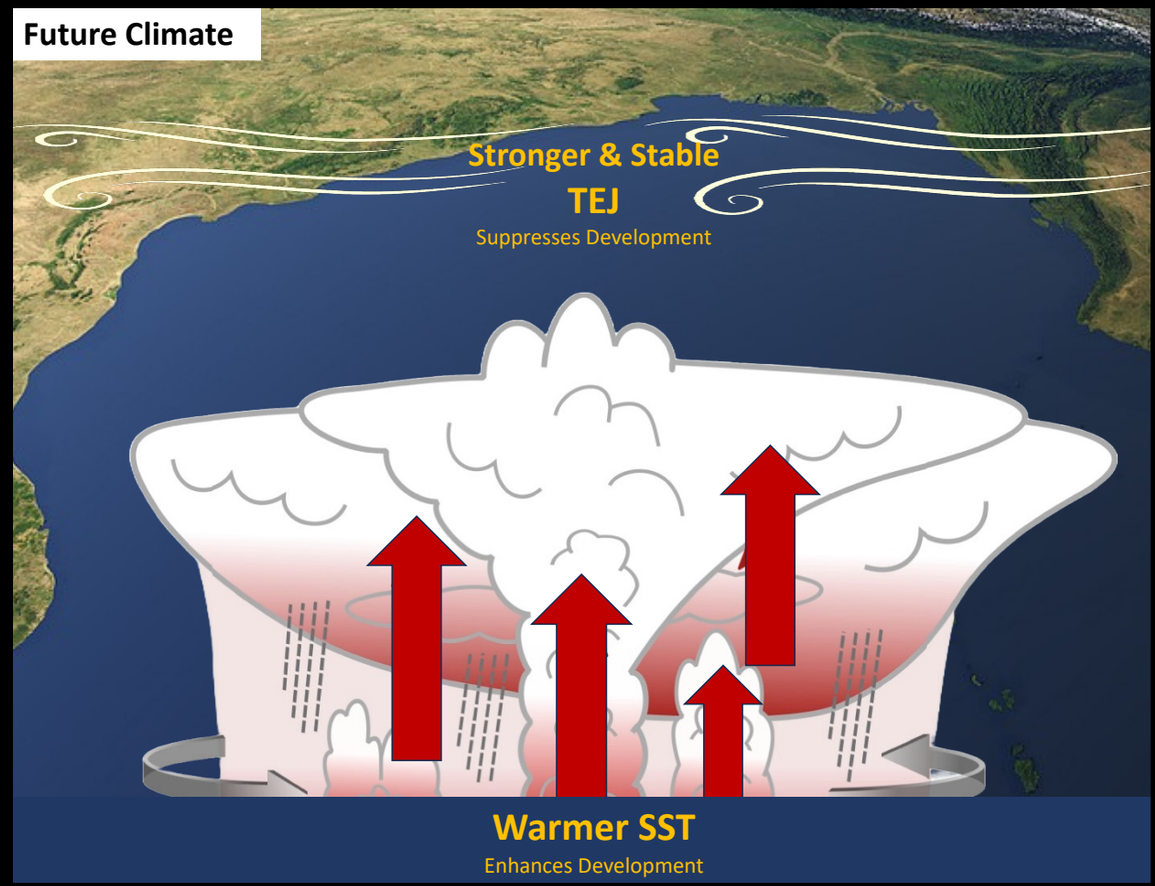
The Role of the Tropical Easterly Jet on the Bay of Bengal's Tropical Cyclones

Tropical cyclones (TCs) in the Bay of Bengal (BoB) are among the most devastating events in nature.

As part of a study using Goddard's Modern-Era Reanalysis for Research and Applications (MERRA-2) and Coupled Model Intercomparison Project phase 6 (CMIP6) models, the researchers were able to explain the predictions of the evolution of BoB TCs in a changing climate. To explain a reduced frequency of TCs despite the warmer sea surface temperature, they highlighted the influence of the tropical easterly jet (TEJ) and its intermittency, an effect not discussed in previous studies.

Sea surface temperature (SST) will continue to warm in the future, increasing the "fuel" for tropical cyclones, but at the same time, upper-level winds will also increase and stabilize. Those stronger winds inhibit TC development. This will result in fewer TCs in the BoB. The impact of the wind is felt both through a stronger average wind and through a decrease of the frequency of wind "relaxation" events.
This study explains the prominent role of the TEJ in controlling the TC activity in the BoB in the current and future climate and emphasizes the importance of the TEJ "relaxation" events.



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