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Thermodynamic Structure of Atmospheric Boundary Layer over the West Coast of India during Active and Weak Phases of Indian Summer Monsoon

Abstract ID: 26

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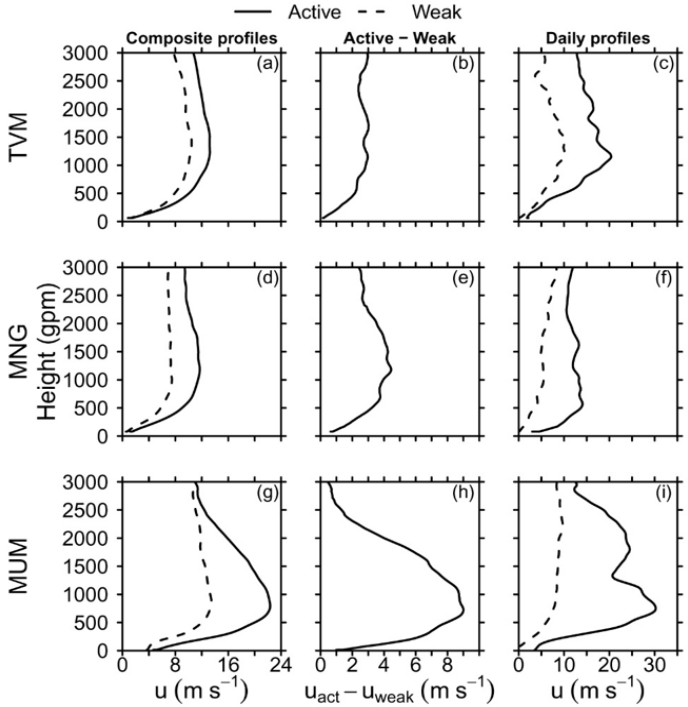
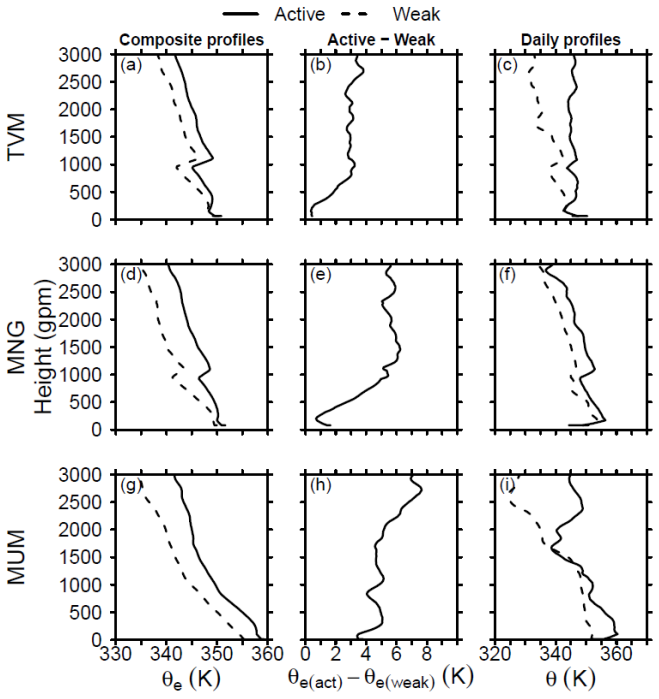
Objective of the paper : To study the variations in the thermodynamic structure of the west coast of India during active and weak phases of the monsoon.

Data, Methodology, Results & Summary

DATA : High vertical resolution (~5 m) **Daily GPS Radiosonde** data of TVM, MNG and MUM from India Meteorological Department (IMD) at 05:30 IST (00 UTC) during May-October, 2018.



Zonal wind profiles (u, m s^{-1}) over (a, b, c) TVM, (d, e, f) MNG and (g, h, i) MUM during active and weak monsoon conditions. Composite profiles (a, d, g), difference between active composite and weak composite (b, e, h), and representative daily profiles (c, f, i) are provided.



Equivalent potential temperature (θ_e, K). over (a, b, c) TVM, (d, e, f) MNG and (g, h, i) MUM during active and weak monsoon conditions. Composite profiles (a, d, g), difference between active composite and weak composite (b, e, h), and representative daily profiles (c, f, i) are provided.

Summary

An absolutely stable or conditionally neutral atmosphere ABL during active phase and conditionally unstable ABL during weak phase in TVM.

Conditionally unstable layer above an absolutely stable surface-based inversion during active phase (with a stronger instability) and well mixed ABL due to thermal convection in weak phase in MUM.