



Seventh WMO International Workshop on Monsoon (IWM-7)
22-26 March, 2022, IMD, MoES, New Delhi, India

Observational atmospheric vertical structure of Core monsoon zone in Central India

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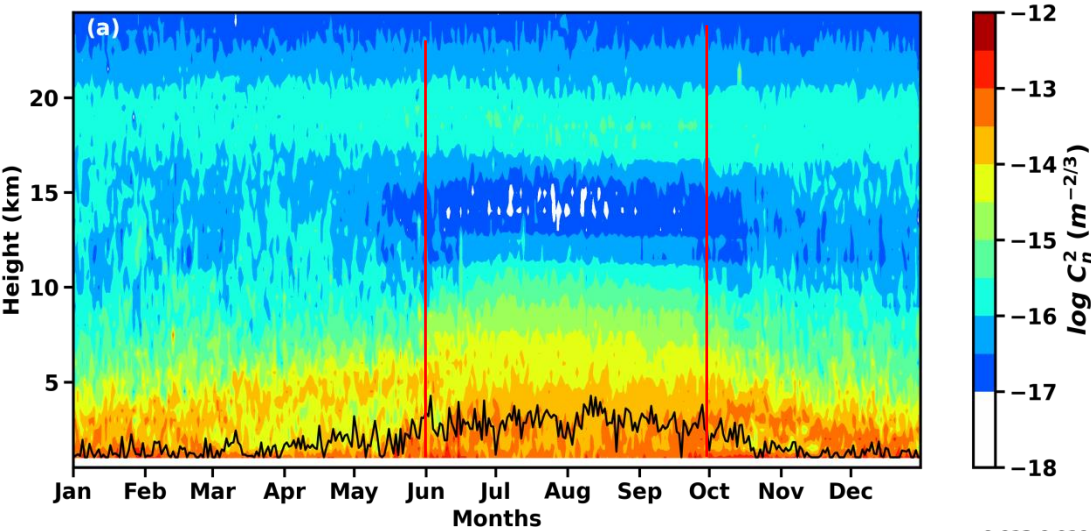
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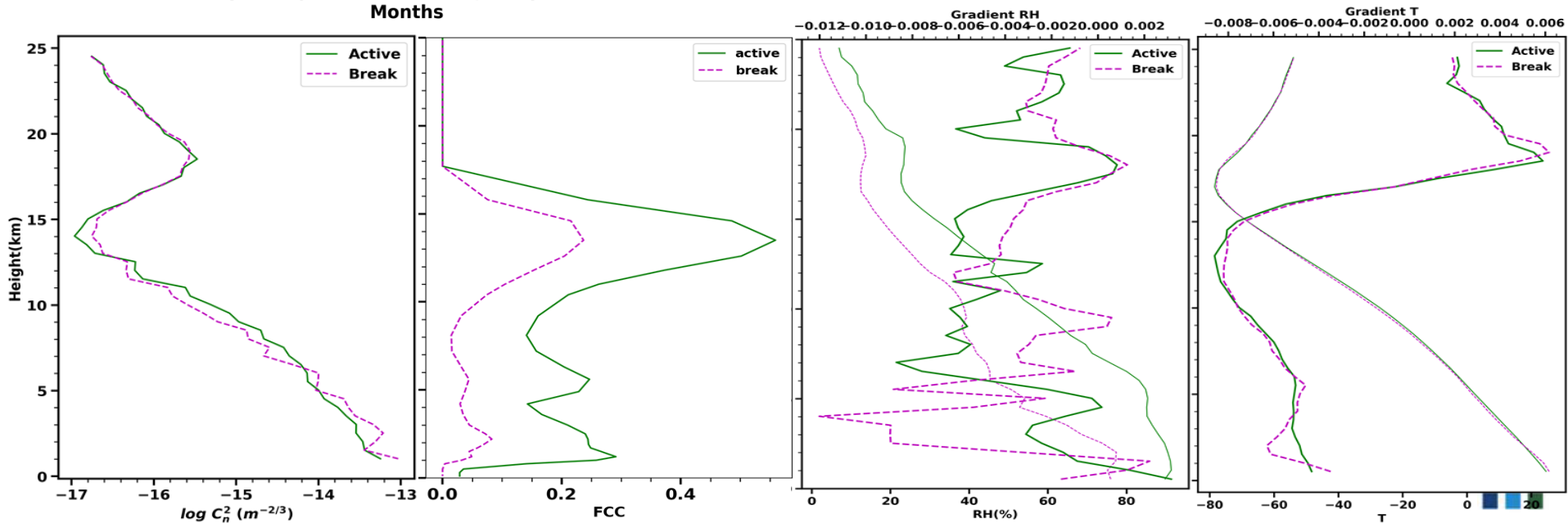
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Objective of the paper To study vertical structure of turbulence (VST) over Bhopal, over core monsoon zone in Central India, using 10 years of GPS-RS data. Explore differences in VST and other parameters during active and break days of monsoon.

Results & Summary



Monsoon season show distinct VST from other seasons and is more homogeneous. Within the monsoon, intra seasonal changes with active and break exists. FCC and RH shows significant differences throughout the height.



Results & Summary

- C_n^2 profiles values are from -18 to -12 $\text{m}^{-2/3}$ in the height range 0.5 – 25.0 km.
- An early signature of weakest turbulence band is noticed even before the onset of monsoon. This can act as a precursor for ISM.
- Monsoon season VST is seen to be more homogeneous.
- Active and break show significant difference in C_n^2 profile due to its variation in its controlling factors, thus suggesting intra-seasonal variation in homogeneous monsoon.
- The higher cold cloud fraction is responsible for the weak turbulence zone centered at 14 km altitude.
- Strong wind shears at the upper flank of non-monsoon STJ and lower flank of monsoon TEJ are responsible for the persistence of secondary C_n^2 maximum zone, above 16 km altitude throughout the year over Bhopal latitude.

Thank you