

### Subseasonal Predictability

The present study reveals that the transitions from both active to break and break to active conditions are predictable by ~8 more days during the weak monsoon (WM) years compared to the strong monsoon (SM) years. Such asymmetric behavior in the limit of predictability could be linked to the distinct differences in the large-scale seasonal mean background instability during SM and WM years.

This study examines the potential predictability limit of intraseasonal transitions between rainy to non-rainy phases (i.e., active to break phases) or vice versa over central Indian region during extreme monsoon using very high-resolution (0.25 X 0.25) daily rainfall datasets.

### Question :

- (i) Whether the estimated observed predictability of active to break (A2B) or break to active (B2A) transitions for both the SM and WM years differ.
- (ii) What is the achievable skill of such estimated predictability in the coupled CFSv2 model?

### Figures

Figure -1 :

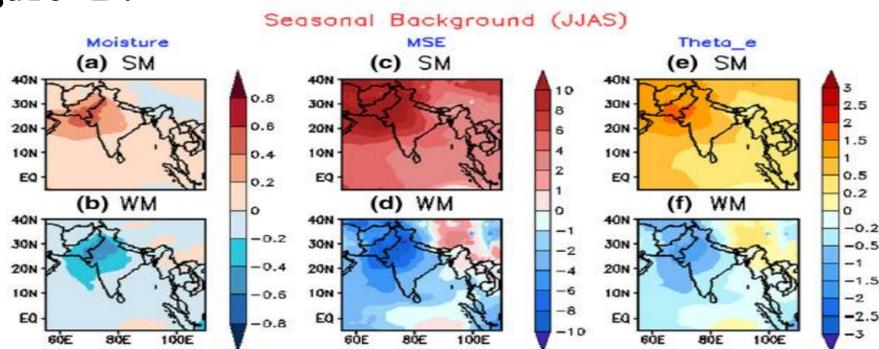


Figure - 2 :

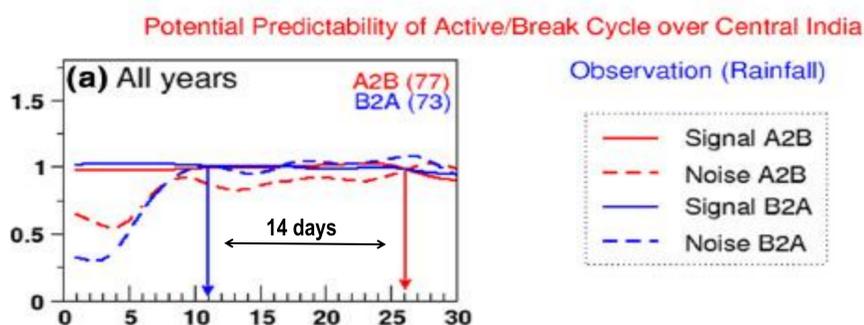
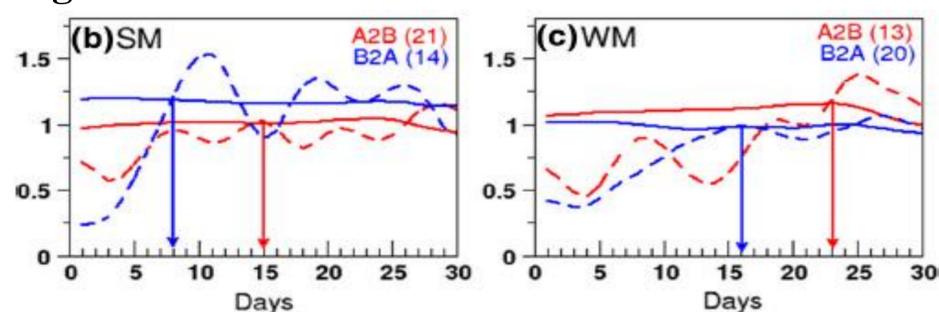


Figure - 3 :



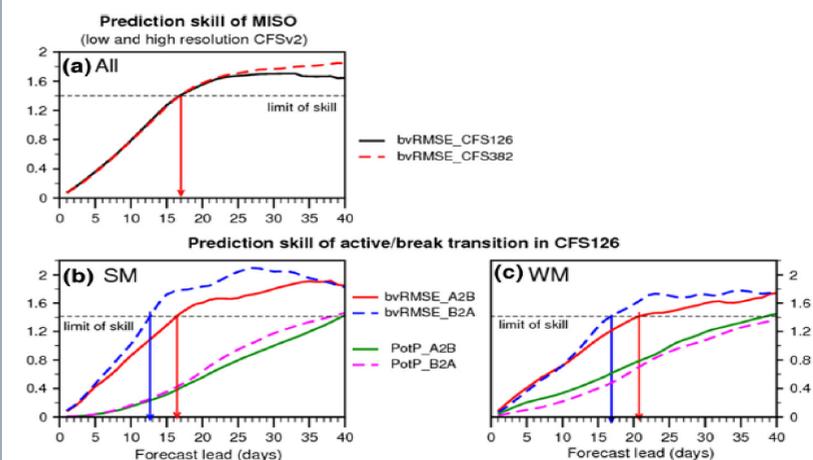
### Data and Method:

The very high-resolution (0.25 X 0.25) daily gridded rainfall dataset over Indian land points from IMD (Pai et al. 2014) has been used here for calculating observed potential predictability of A2B and B2A spell transitions for the available recent period (1981–2012). To estimate the atmospheric instability, the daily atmospheric datasets from modern era retrospective analysis (MERRA) are used (Bosilovich et al. 2006). The Tropical Rainfall Measuring Mission (TRMM)-gauge-merged rainfall dataset (Mitra et al. 2009) available from IMD for the period (1998–2014) has also been used to verify ERP of CFSv2 for A2B and B2A transitions.

### Conclusion

- The present study unveils the potential predictability of the ISV transitions between rainy to non-rainy phases (A2B) or vice versa (B2A) over central Indian region during extreme monsoon years using very high-resolution (0.25 X 0.25) daily observed rainfall datasets (1981–2012).
- This paper is a direct extension of the recent study by Sharmila et al. (2015a) that emphasizes the implication of the asymmetry in the seasonal mean state on the predictability of A2B and B2A transitions during the summer monsoon season over India. From the observations, it is revealed that both the transitions from A2B and B2A are potentially more predictable by ~8 days during WM as compared to SM years.
- It is demonstrated that such asymmetry in predictability limit may be reproducible in CFSv2, and it is independent of the spatial resolution of the model.

### Figures



Asymmetric nature of predictability is exhibited By CFS runs

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### References :

Pai DS et al (2014) Development of a new high spatial resolution (0.25 9 0.25) long period (1902–2012) daily gridded rainfall data set over India and its comparison with existing data sets over the region. Mausam 65:1–18 .  
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 Goswami BN, Xavier PK (2003) Potential predictability and extended range prediction of Indian summer monsoon breaks. Geophys Res Lett 30:1966