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# **Role of land surface feedback process and prediction skill in the S2S scale during monsoon onset in the coupled model framework ID -138**

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## **Objective-**

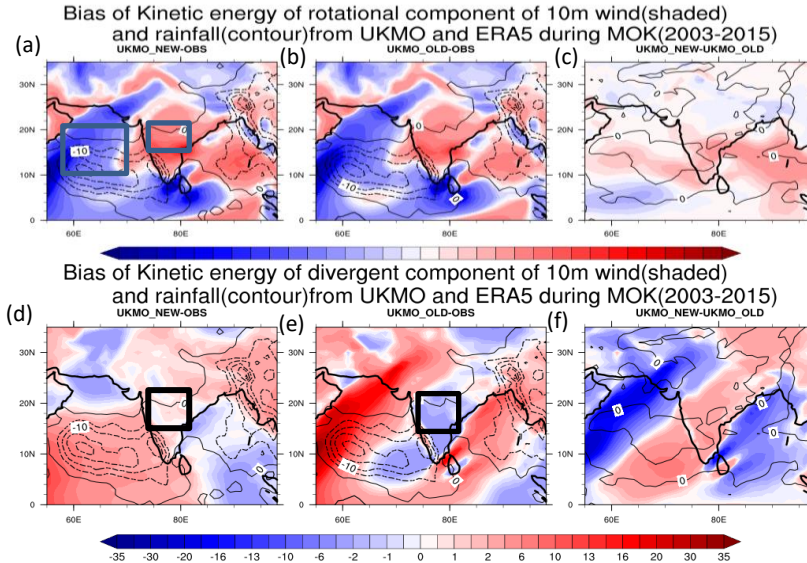
- What is the role of land surface feedback in the extended range prediction of Monsoon Onset?
- How the prediction skill affected by the land surface parameter.

# Data, Methodology, Results & Summary

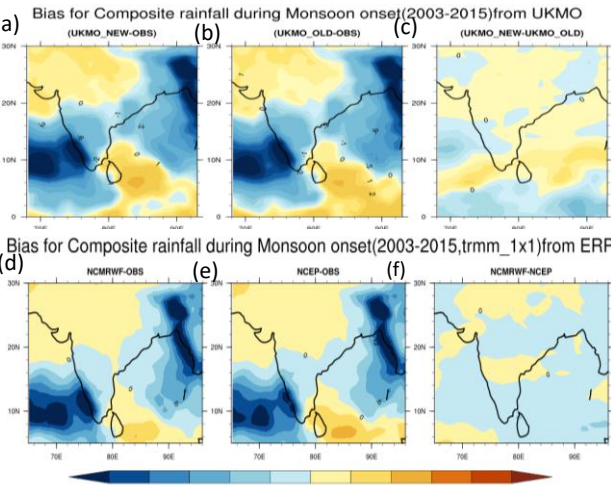
We have taken two run from UKMO model as a part of WCSSP project-

- 1) In one, the soil moisture was initialized from a climatology and soil temperature and snow were initialized from ERA-Interim reanalysis. (UKMO\_OLD).
- 2) In the other, a land surface re-analysis is used which was created using the JULES land surface model forced by JRA-55 reanalysis from 1990 onwards. (UKMO\_NEW).

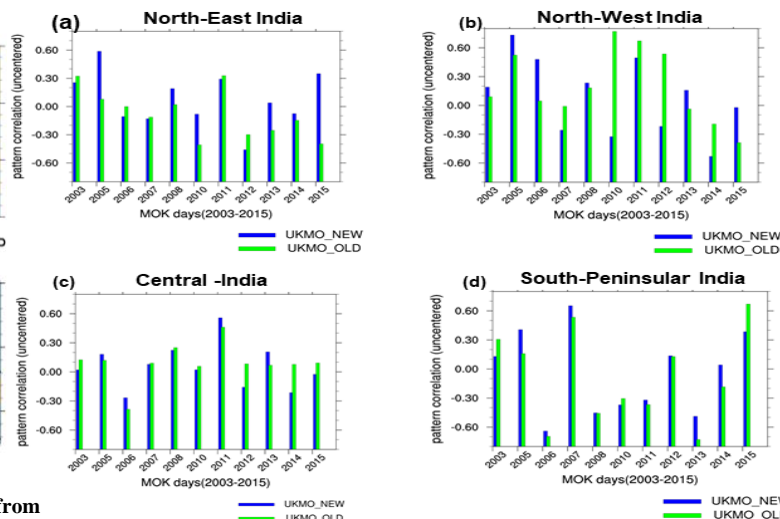
- For observation IMD datasets, ERA5 reanalysis are used..
- UKMO IC -0517
- **N.B. Actual MOK dates were taken from paper Joseph et al., 2015.**



**Fig:2 Bias of rot Kinetic energy of 10 m wind((shaded) and rainfall(contour) (a-c) and bias of div Kinetic energy (d-f) from UKMO and ERA5 during MOK(2003-15).**



**Fig:1 Bias of rainfall composite (a-c)from UKMO model and (d-f) from IITMCFCS during monsoon onset(2003-2015).**



**Fig:3 Pattern corr for rainfall b/w UKMO and IMD**

- This paper examined the role of the land surface initialization feedback process during monsoon onset(2003-2015) beyond ten days lead time and its prediction skill from UKMO and IITM-CFS model.
- From fig1 (d,e) both the model (UKMO\_OLD and UKMO\_NEW ) are not able to capture the rainfall pattern.
- Land –surface play an important role during monsoon onset through its feedback processes.
- And the feedback over land and over ocean is different (fig 2a , 2d and 2e)
- From the above figures we can say that if we have error in land surface it will affect near surface flux(surface wind ..etc) further it will affect the monsoon onset rain.
- From the pattern correlation((fig 6) we can say that over the north West India UKMO\_NEW possesses useful prediction skill for Monsoon onset rainfall beyond 10 days lead.
- And overall UKMO\_NEW shows better prediction skill beyond 10 days lead.