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Forecast of the Onset Date of Southwest Monsoon 2023 over Kerala

## 1. Background

Advance of the southwest monsoon over Indian main land is marked by monsoon onset over Kerala and is an important indicator characterizing the transition from hot and dry season to a rainy season. As the monsoon progresses northward, relief from scorching summer temperatures is experienced over the areas. Southwest monsoon normally sets in over Kerala on 1<sup>st</sup> June with a standard deviation of about 7 days. India Meteorological Department (IMD) has been issuing operational forecasts for the date of monsoon onset over Kerala from 2005 onwards. An indigenously developed state of the art statistical model with a model error of  $\pm 4$  days is used for the purpose. The 6 Predictors used in the models are; i) Minimum Temperatures over Northwest India ii) Pre-monsoon rainfall peak over south Peninsula iii) Outgoing Long wave Radiation (OLR) over south China Sea (iv) Lower tropospheric zonal wind over Southeast Indian Ocean (v) Mean sea level pressure over Subtropical NW Pacific Ocean (vi) Upper tropospheric zonal wind over North East Indian Ocean.

IMD's operational forecasts of the date of monsoon onset over Kerala during the past 18 years (2005-2022) were proved to be correct except in 2015. Forecast verification for the recent 5 years (2018-2022) is given in the table below.

Year	Actual Onset Date	Forecast Onset Date
2018	29 <sup>th</sup> May	29 <sup>th</sup> May
2019	8 <sup>th</sup> June	6 <sup>th</sup> June
2020	1 <sup>st</sup> June	5 <sup>th</sup> June
2021	3 <sup>rd</sup> June	31 <sup>st</sup> May
2022	29 <sup>th</sup> May	27 <sup>th</sup> May

## 2. Forecast for the 2023 Monsoon Onset over Kerala

This year, the southwest monsoon onset over Kerala is likely be slightly delayed than normal date of onset. The monsoon onset over Kerala is likely to be on **4<sup>th</sup> June** with a model error of  $\pm 4$  days.