German modelling to crack monsoon code

IIT-Madras associates itself with Potsdam Institute for Climate Impact Research's project, IMD kept in the loop

With the skies getting clear after two days of rain, boys enjoying their walk back home in the backdrop of the sunset near Chinthathripet, on Thursday | **R SATISH BABU**

S V KRISHNA CHAITANYA
@ Chennai

WITH INDIAN monsoon becoming increasingly erratic due to global warming and climatic change, the current precipitation analysis that Indian Meteorological Department (IMD) banks on for predicting onset and withdrawal of monsoon is getting loaded with limitations. Now, a group of scientists led by Potsdam Institute for

power plants and aeroengines and rockets, there is much to learn from each other. "We are planning to test the performance of our method for Southwest Monsoon timing of this year in Chennai," she said.

RI Sujith, Department of Aerospace Engineering, IIT Madras, said there was no formal agreement between PIK and IIT Madras. "However, we are glad to get associated with the project and

new method. "We have submitted the forecast on onset of Indian Summer Monsoon on May 6 to IMD, which over one month earlier and the prediction seem to be accurate," Elena said and added that they will be shortly signing an agreement with Telangana government that has roped them as consultants to predict the monsoon onset, duration and its implication on various sectors like agriculture, power etc.

Both converge at one point in Intertropical Convergence Zone (ITCZ) which triggers the onset of monsoon."

Before developing the new method, researchers studied 70 years of satellite data accessed from National Centre for Environmental Prediction and the National Centre for Atmospheric Research for the period 1951-2015. However, the most relevant information is the last 14 years. In 73%

RAIN TRAIL

With the German research team devising a new methodology to keep track of monsoon, Express takes a look into the nitty-gritties

Basic difference

The existing models, including the one developed by the IMD, can accurately predict the onset of the southwest monsoon over Kerala

The new method proposed by the German scientists can predict both the onset and withdrawal of monsoon over central India

The new one uses air temperature and relative humidity unlike current methods

Spot on

May 6: researchers predict monsoon will hit Telangana on June 10 +/- 4 days

June 8: monsoon hits Kerala, will reach Telangana on Friday

Ghats, North Pak link

As per the German approach, Eastern Ghats in Central India and North Pakistan serve as "tipping elements" in more accurately predicting the arrival and departure of the southwest monsoon

Cyclonic circulations start in the Eastern Ghats as a local weather phenomenon and serves as a tipping element due to the collision of the two branches of monsoon (Arabian Sea and Bay of Bengal)

tuted led by Potsdam Institute for Climate Impact Research (PIK) in Germany claim that they have discovered a new methodology that will predict the monsoon timings at least one month earlier than existing methods. IIT Madras is the latest to join forces in this novel project.

Elena Surovyatkina, co-author and visiting professor at PIK in Germany, told *Express* in an exclusive interview that their method was based on a critical transition precursor.

With Aerospace Engineering Department of IIT Madras being a pioneer in predicting impending transitions in thermoacoustic instabilities, which often lead to catastrophic consequences in

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Importantly, IMD has recognized and acknowledged the new approach. Dr D Sivanand Pai, head of IMD's Climate Services Division, Pune, has endorsed the

Elena explains that Eastern Ghats in Central India and North Pakistan form the bases for their study and serve as "tipping elements" in more accurately predicting the arrival and departure of the southwest monsoon.

"Eastern Ghats records the highest pre-monsoon temperature and cyclonic circulations start here, while North Pakistan throws-up anti-cyclonic systems.

of the years examined, it gives an accurate prediction of the onset with a range of seven days from the actual date. For the withdrawal, it gives a correct prediction in 84% of the years, with a range of 10 days. Researchers say in the future, this method can also help to unravel mysteries of other climate phenomena. In addition, the new method notably improves the forecasting of monsoon timing during years affected by the global weather phenomenon El Nino-Southern Oscillation (ENSO), particularly in its La Nina phase. This phenomenon significantly alters monsoon timing and decreases the prediction accuracy in existing methods.