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15 p.c. deficit monsoon predicted

By Harichandan A.A.

BANGALORE MAY 13. A "multi-method experimental forecast" by the Centre for Mathematical Modelling and Computer Simulation (C-MMACS), an autonomous society under the Union Government, says there will be a delay in onset and a deficit in the all-India summer monsoon this year.

The C-MMACS has used a combination of neural networks, diagnostic models and dynamical models to improve the overall scope and reliability of the forecast, P. Goswami, the scientist whose team has come up with this prediction, said here on Tuesday.

The core of the prediction, by the neural network model, is an overall 15 per cent deficit in the all-India monsoon, compared to the long-term average, with an error of not more than 4 per cent.

It may be recalled that the India Meteorological Department predicted a near normal monsoon, in its forecast on April 16.

The neural network model, also called the cognitive model, has been developed and used by C-MMACS over the last eight years; seven of those predictions were accurate, says Gangan Prathap, Scientist-in-Charge, C-MMACS.

The learning algorithm used recorded data over the last 130 years, of which the first 60 were used to train the network and the next 70 were used to validate it; from

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this the long-term average has been taken as 880 mm for the four months of the monsoon, June to September. This time, the forecast says there will be 15 per cent less than that average.

The last time C-MMACS predicted a shortfall was in 2000 when it predicted accurately a deficit of about 8 per cent. The one failure was last year, when almost all forecasts - including those of the IMD - completely failed to anticipate the huge 19 per cent drop in actual rainfall. The 15 per cent drop predicted for this year, is the biggest deficit prediction in the last decade.

Highlights

The dynamical model predicts a shortfall in some regions and excess in others during June and July. Forecast for the remaining monsoon months will be made soon with this model.

The highlights of the dynamical forecast are: The onset in terms of jump in precipitation (crossing of a 3 mm a day precipitation threshold) over the coast of Kerala is likely to take place around June 6.

June will receive more than the normal rainfall over southern India and the North-East, and normal or slightly deficit rainfall over the central regions.

However, there will be a strong deficit over the western coast.

Rainfall in June will be below normal also for most parts of western and northern India and parts of eastern India.

For the critical month of July, the situation reverses, with significantly below normal rain over southern India, while central India will receive significantly above normal rainfall. Western India, especially Gujarat, should receive above normal rainfall, the forecast says.

Limitations

Dr. Goswami said it was important that several limitations to this experimental forecast be recognised. In practice, it is very difficult to achieve high spatial

and temporal resolution when factoring in all the processes operative in the earth-ocean-atmosphere system, he said.

The present results may change for one or more of the following reasons. These results are based on calculations made with "initial conditions" from April 1. The simulation is very sensitive to those conditions, and may change, closer to June 1. The data for the initial conditions itself is taken from analyses which often contain contributions from other models. In this case, it includes data from the National Centre for Environmental Prediction. This also influences the results, among other factors. The C-MMACS' simulation gives for the first time in the country, a 50 km x 50 km resolution, which is roughly a district-by-district break-up.

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