

Innovative model for forecasting monsoon behavior

Forecasting weather conditions helps farmers to adjust and manage their cropping activities. It becomes all the more important with the changes in climatic conditions gaining significance. While scientific forecasting is being done in different ways, the author has based his forecasting on the planetary positions.

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Basically, the weather over any particular place depends on the topography of the location and solar radiation. The dates of equinoxes and solstices are almost fixed. In other words, the distance between earth and sun is almost the same every year on that particular date. However, we observe vast variations in weather related parameters like temperature, humidity, rainfall and also weather disturbances like extreme cold wave, heat wave, cyclone etc.

As a researcher, with a passion for impacting the lives of Indian farmers, I was dwelling on one thought, day in and day out. Is there a possibility of the effect of planets on behavior of weather on earth? e.g. Moon being just a satellite, exerts tidal action on the waters on earth. Subsequently, a Research Project was carried out with observations of daily monsoon rainfall (Courtesy: Dept. of Agriculture & Revenue-Govt. of Gujarat) since 1966 along with positions of Sun, Moon and other planets of the Solar system (Courtesy: Ephemeris information from India Meteorological Department and many other sources.)

Some eye-catching parameters were found which might have effects on rainfall occurrence. From 1992, daily positions of sun, moon and planets were worked out from 1st June to 30th September (122 days) and the selected parameters based on relative motion of planets were applied to identify the probable rainy days during the forthcoming monsoon. Finally, date wise trend of monsoon forecasts were prepared and issued to the press in the month of April for Saurashtra region of Gujarat state, having 7 Districts comprising 73 taluks.

The datewise actual rainfall data is collected and the skill of forecast verified on Yes/No basis. The results were encouraging. Maximum accuracy for one particular year 1999 was 80 % and average accuracy is more than 65%. (1992-2006).

To sum up, it is observed that there are definitely strong co-relations between planetary movements with relation to Sun and weather. The success achieved has helped in consolidating the positive results and draw important parameters to re-apply it in future to other geographical areas of India.

Advance forecast of monsoon behaviour for Pune for 2008

Forecast about the monsoon behaviour was made two months in advance, for Pune city in Maharashtra. The actual situation is also provided to understand the efficacy of the forecast.

Forecast: 10 days between 15 to 22 June - There is a possibility of very good rain. Rivers and tributaries may overflow. There is a possibility in increase in water level in dams and check dams

Actual: Pune, which was suffering from a poor rainfall after the start of the monsoon, witnessed good rainfall in the last couple of days of June. As per the figures available with the Met department, Pune received 128 mm rainfall for the first month of the season, which is 15 mm more than normal.

Forecast: There is possibility of less rains in July as compared with June rainfall.

Actual: While the average rainfall was 128mm in June, it was 85 mm in July

Forecast: From 10th to 17th August, there is a possibility of heavy rains and at some places very heavy rains which may bring floods.

Actual: The quantity of water in all the six dams supplying water to Pune City have reached the optimum storage capacity for the first time in the season, following the heavy rains at the catchment areas in the past 10 days (Times of India, dated Aug 20, 2008)

Forecast: There is a possibility of less rain in the month of September. The farmers are requested to take steps to irrigate crops (during shortage of rain) by using harvested water; Government should provide irrigation water wherever possible.

(Heavy to very heavy rainfall - more than 150 mm: canals and rivers overflow and Underground water table increases;

Heavy rainfall - 75 to 150 mm: Soil is saturated and water flow of the farm/fields;

Medium rainfall - 21 to 75 mm: it will sustain humidity for crops for more than week;

Little rainfall - 5 to 20 mm: may sustain humidity for few days).

A systematic approach is needed from the scientific community for a better and more accurate forecast of on-set, dry-spell, wet-spell and withdrawal of monsoon, on date and area wise basis.

Some of the eye-catching forecasts made and widely appreciated by farmers and researchers are provided in the Box.

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