

Climate SAR

Climate Science And Research

सार



Climate Change Research Institute

Science & Technology Solution for Sustainable Energy Future

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SUNNY



**PARTLY
SUNNY**



**PARTLY
CLOUDY**



**SUN &
RAIN**



RAIN



**THUNDER-
STORMS**



SNOWING



CLOUDY



WINDY



RAINBOW



TORNADOS



CLEAR

FROM EDITOR

As monsoon arrives, we say what a relief from hot and sultry weather! Monsoon is a welcome season for most parts of the country much needed for agriculture prone states.



As the rain is delayed in this year, I am reminded of a folk-lore in Gujrat, which says, *"It there is a Sunday on the 10th day of the month of Jyesth, there will be no rain and severe famine."* Assuming that year of famine is a year in which rainfall is below normal, the weather data has not proved it yet.

I am wondering was it the reason for below normal rain fall this year. After all Indian traditions have great depth and this is from '*Brihat Samhita*'. Even if we do not know the basis of folk-lore such wisdom cannot be over looked.

We at Climate Change Research Institute have started this bulletin on Climate Science and Research, as "Climate SAR". In this issue we start with 'Weather' and 'Climate'. You learn about weather, seasons and climate. How weather is measured and why weather forecast is made?

Happy reading and send your feedback and suggestions

Malti Goel

Executive Director, CCRI





ABOUT WEATHER

Weather is an important part of our lives. We find that weather controls how and where we live, what we wear and how much energy we consume. Weather is always changing. For example: we say it is raining today, yesterday it was sunny and hot. Weather predictions are made by Meteorologists, who provide us day to day information about weather. Weather changes from place to place. The weather at different locations changes depending on whether it is a hilly area or near the sea coast.

ABOUT SEASON?

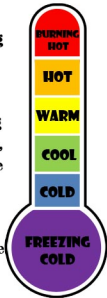
Season is synthesis of weather at a place over a period of three weeks. When similar type of conditions persist we call it a season. For example: Hot, Cold, Rainy or Spring season.

WEATHER FORECAST

Weather forecasting is the application of science and technology to predict the future state of the atmosphere for a given location. Weather forecasts are made by collecting quantitative data about the current state of the atmosphere at a given place. Super computers analyze the data using scientific understanding of atmospheric processes and make a forecast about how the weather will evolve at that place. We can make weather forecast up to one day, three days or ten days in advance using different forecast models.

WHAT IS CLIMATE?

Climate is often spoken about at the same time as weather, but it is something quite different. The climate is the common, average weather conditions at a particular place over a long period of time (for example, more than three weeks). We learn about different climates around the world, when they occur for more than 30 years. Deserts have a hot and dry climate while the Antarctica has a very cold and dry climate.



FOLK-LORES

Human beings have attempted to predict the weather informally over millennia. There are many weather folk-lore about rainfall, common in different parts of the country as follows.

'When clouds appear like partridge feathers and spread across the sky, they will not go without shedding rain.'

'When lightning flashes in the Northern sky and the wind blows from the east & oxen under shelter because it sure to rain.'

'When water in the pitcher does not cool, when sparrows bathe in dust and the ants take their eggs to a safer place, you can be sure of a heavy downpour.'

'If the southern wind flows in the months of Megha and Paush (January-February) the summer monsoon is bound to be good.'

'If in the month of Falgun, it rains so much as to wash the Batard tree flowers, If there is lighting in the month of Baisakh and if it is too hot in the month of Jyesth, then there will be no end to rains in the monsoon.' (Gujarat)

'If January is hot and April is cold, early floods are fore told.' (Bengal)

'If there is thundering in the month of any (June-July), there will be no rain for two months.' (Tamilnadu)

'Scorching heat in June indicates heavy rain' (Uttar Pradesh)



**Source : U-PROBE for Weather & Climate, H.N. Srivastava and Malti Goel, DST Publications, 2007.*



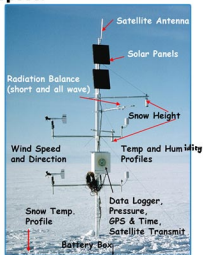


WEATHER MONITORING

Weather monitoring is done using instruments to measure temperature, relative humidity, pressure, rainfall and wind data. These measurements are carried out at monitoring stations across the globe at a constant time intervals and at different heights. In Addition weather monitoring is done by using the satellites. The satellites revolving in outer space are fitted with powerful cameras which take the photographs of cloud formations in the atmosphere at short intervals and then transmit these photographs to the earth. These satellites also carry a large variety of scientific instruments which keep on collecting weather-related data in the atmosphere and send this information to the meteorological centers of the earth. Instruments to measure air pollution are also provided on board.

AUTOMATIC WEATHER STATION (AWS)

An automatic weather station (AWS) is an automated version of the traditional weather monitoring station. It enables measurements from remote areas as well as local area where manual monitoring is not possible. An AWS consist of a weather-proof enclosure containing the data logger, GPS and the meteorological sensors with an attached wind vane mounted on a mast. In remote places AWS has a chargeable battery which can be connected to a solar panel and a telemetry system to transmit the data to a central place. The specific configuration may vary from place to place and according to the purpose.



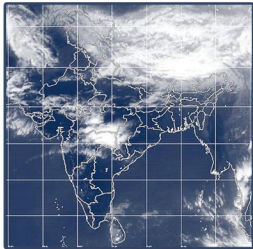
Automatic weather station in a snow cloud area



INDIA'S WEATHER

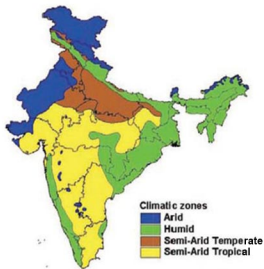
The climate of India resolves into four major climatic types with four sub seasons, winter (December to February), summer (March to May), monsoon or rainy season (June to September), and post-monsoon period (October to November). India has a tropical climate except for Himalayas, Which are more temperate.

The weather has significant variations from region to region. In central region coolest weather lasts from around the end of November to end of February, with mostly sunny days. Fog is common occurrence during this period in some parts. The hot weather, when it is dry, dusty and unpleasant, can vary from March and June. South west Monsoon rains occur in most regions of the country between June and September. North-east monsoon rainfall occurs during October mostly in south India.



MICROCLIMATES

According to traditional Hindu philosophy there are six seasons, each about two months long. These are; Spring, Summer, Monsoon, Autumn, Winter and Shishira. Climate influences give rise to desert in the west, alpine tundra and glaciers in the north, humid tropical regions in the north-east and supporting rain forests in the southwest. Regions have starkly different—yet tightly clustered—microclimates. In India four micro-climatic zones are : Arid, Humid, Semi-arid Temperate and Semi-arid Tropical.





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