

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 3592
TO BE ANSWERED ON WEDNESDAY, 22ND MARCH, 2023**

WEATHER FORECAST FOR SUMMERS

3592. SHRI M.K. RAGHAVAN:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government has given any indications to State Governments regarding weather forecast for summers, if so, the details thereof;
- (b) whether the Government projects that this summer is likely to be warmer than usual in India, if so, the details of steps taken to prevent heat strokes;
- (c) whether the Ministry has any data regarding the summer heat that can affect Kerala, if so, the details thereof;
- (d) whether the Government has observed warming up of water bodies in Kerala as a result of summer heat, if so, the details of warnings issued in this regard; and
- (e) the details of steps taken to prevent drought like situation in Kerala?

ANSWER

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

- (a) Yes Sir. India Meteorological Department (IMD) started issuing Seasonal Outlook for Hot Weather Season from 2016 onwards. The outlook for March-April-May is issued towards the end of February/beginning of March and the updated outlook for April-May-June is issued towards the end of March. Accordingly IMD has issued Seasonal outlook for Hot weather Season (March to May) 2023 and Monthly Outlook for March 2023 for the Temperature and Rainfall on 28 February 2023.

The highlights pertaining to temperature scenario during March-May2023 are given below:

- During the upcoming hot weather season (March to May (MAM)), above normal maximum temperatures are likely over most parts of northeast India, east and central India and some parts of northwest India. Normal to below normal maximum temperatures are most likely over remaining parts of the country.
- During the season (MAM), above normal minimum temperatures are very likely over most parts of the country except south peninsular India where normal to below normal minimum temperatures are likely.

- Monthly maximum temperatures for March 2023 are likely to be above normal over most parts of the country except peninsular India where normal to below normal maximum temperatures are likely.
- Above normal monthly minimum temperatures are most likely during March, 2023 over most parts of India except south peninsular India where normal to below normal minimum temperatures are likely.
- Enhanced probability of occurrence of Heatwave during March to May season is likely over many regions of Central and adjoining Northwest India.

(b) Yes Sir. For supporting mitigation efforts related to heatwave, the following actions are taken :

To minimize the effect of heatwaves, during the period from 1 April to 30 June, IMD issues colour coded impact based heatwave warning for the benefit of the Public and stake holders. The criteria for colour code used for the purpose are given in the table below

Green (No action)	Normal Day	Maximum temperatures are near normal
Yellow Alert (Be updated)	Heat Alert	Heat wave conditions at isolated pockets persists on 2 days
Orange Alert (Be prepared)	Severe Heat Alert for the day	(i) Severe heat wave conditions persists for 2 days Through not severe, but heat wave persists for 4 days or more
Red Alert (Take Action)	Extreme Heat Alert for the day	(i) Severe heat wave persists for more than 2 days. Total number of heat/severe heat wave days exceeding 6 days.

IMD has finalized the impacts and suggested actions with respect to the intensity of heatwave and the colour code used for related warning, in collaboration with NDMA. Details of the same are given in the table below;

Colour Code	Alert	Warning	Impact	Suggested Actions
Green (No action)	Normal Day	Maximum temperatures are near normal	Comfortable temperature. No cautionary action required.	Nil

Yellow Alert (Be updated)	Heat Alert	Heat wave conditions at isolated pockets persists on 2 days	Moderate temperature. Heat is tolerable for general public but moderate health concern for vulnerable people e.g. infants, elderly, people with chronic diseases	(a) Avoid heat exposure. (b) Wear lightweight, light-coloured, loose, cotton clothes. (c) Cover your head: Use a cloth, hat or umbrella
Orange Alert (Be prepared)	Severe Heat Alert for the day	(i) Severe heat wave conditions persists for 2 days (ii) Through not severe, but heat wave persists for 4 days or more	High temperature. Increased likelihood of heat illness symptoms in people who are either exposed to sun for a prolonged period or doing heavy work. High health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.	(b) Avoid heat exposure— keep cool. Avoid dehydration. (b) Drink sufficient water—even if not thirsty. (c) Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated
Red Alert (Take Action)	Extreme Heat Alert for the day	(i) Severe heat wave persists for more than 2 days. (ii) Total number of heat/severe heat wave days exceeding 6 days.	Very high likelihood of developing heat illness and heat stroke in all ages.	Extreme care needed for vulnerable people.

Recent developments in Heat wave Early Warning Services by IMD are as follows

- Two special heat wave impact based bulletins are prepared in addition to routine daily bulletins. The first one is issued at 0800 hours IST with 24 hours subdivision wise impact based heat warning and the 2nd one is issued at 1600 hours IST with 5 days subdivision wise impact based heat warning in graphics as well as text format.
- Extended range forecast bulletin (include temperature forecast and warnings for next two weeks) is issued every Thursday.

- The following new Information in Web-GIS is added for better interpretation of Heat Wave warnings by various users:-
 - i. Interactive Map for actual Maximum temperature & its Departure from normal temperature based on the situations of the day.
 - ii. Interactive Map for Heat Wave and Severe Heat Wave along with Warm Nights and very Warm Nights based on the situations of the day.
 - iii. Normal Relative Humidity (RH) for March to June months based on 0830 and 1730 IST are provided to assess the impact of RH during the Heat Wave days since the impact of Heat Wave becomes more severe with increase in the RH.

For Dissemination of Heat Wave Warning, the following modes are used:

- i. **Mass Media:** Radio/TV, News Paper network (AM, FM, Community Radio, Private TV): Prasar Bharati and private broadcasters
- ii. Weekly & Daily Weather Video
- iii. Internet (e-mail), ftp
- iv. Public Website (mausam.imd.gov.in)
- v. IMD Apps: Mausam/ Meghdoot/DAMIN/RAIN ALARM
- vi. Social Media: Facebook, Twitter, Instagram, YouTube

IMD in collaboration with local health departments have started heat action plan in many parts of the country to forewarn about the heat waves and also advising action to be taken during such occasions. Heat action plan became operational since 2013. The Heat Action Plan is a comprehensive early warning system and preparedness plan for extreme heat events. The Plan presents immediate as well as longer-term actions to increase preparedness information-sharing, and response coordination to reduce the health impacts of extreme heat on vulnerable populations. NDMA and IMD are working with 23 states prone to high temperature leading to heat-wave conditions for supporting heat action plans.

- (c) As per the seasonal (Mar-May) probabilistic forecast for the maximum temperature, normal to below normal maximum temperatures are most likely over South Peninsula including Kerala.

As per the probabilistic forecast for the spatial distribution of heatwave for the season (Mar-May) there is minimum probability of occurrence of heatwave in Kerala.

- (d) No Sir.
- (e) IMD provides actual and forecast rainfall information in different spatial scale like districts, States & meteorological subdivisions level and temporal scale like daily, weekly & seasonally to the Ministry of Agriculture for drought monitoring for the whole country including Kerala. Moreover, National AAS bulletin based on Extended Range Weather Forecast is prepared jointly by IMD and the Central Research Institute for Dryland Agriculture (CRIDA), ICAR, Hyderabad on every Friday for the subsequent two weeks. These bulletins provide the rainfall and temperature forecast for two weeks and agromet advisories at the meteorological subdivision level.
