

# **Heat Waves and Heat Index**

For Prelims: Heat Index, Heat Waves, India Meteorological Department

For Mains: Role of India Meteorological Department (IMD) in mitigating severe weather events, Concept

of the Heat Index

#### **Source: PIB**

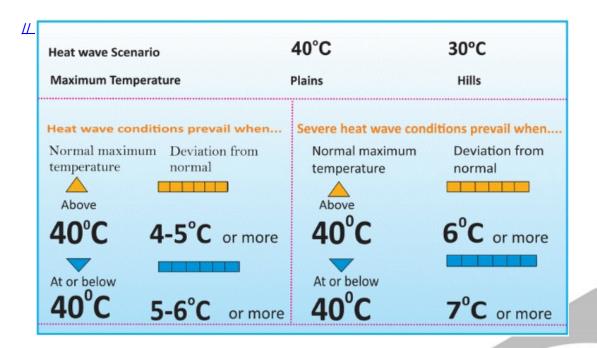
## Why in News?

India has witnessed a **significant decline in heat-related deaths** in recent years, reflecting the country's efforts to combat the adverse effects of **heatwayes**.

- The <u>India Meteorological Department (IMD)</u> plays a vital role in this endeavor, issuing timely forecasts and warnings to mitigate the impact of severe weather events, including heatwaves.
- Recently, IMD introduced the <u>Heat Index</u>, a valuable tool that considers humidity's influence on temperatures.

#### What are Heat Waves?

- About:
  - Heat waves are prolonged periods of excessively hot weather that can cause adverse impacts on human health, the environment, and the economy.
  - India, being a tropical country, is particularly vulnerable to heat waves, which have become more frequent and intense in recent years.
  - IMD Criteria for Declaring Heat Wave in India:
    - Heat wave is **considered if the maximum temperature of a station reaches at least 40°C or more** for Plains and at least 30°C or more for Hilly regions.
      - Based on Departure from Normal:
        - Heat Wave: Departure from normal is 4.5°C to 6.4°C.
        - Severe Heat Wave: Departure from **normal is >6.4°C.**
      - Based on Actual Maximum Temperature:
        - Heat Wave: When actual maximum temperature ≥ 45°C.
        - Severe Heat Wave: When actual maximum temperature ≥47°C.
- IMD's Initiatives and Tools to Combat Heat Waves:
  - Timely issuance of heat wave forecasts to keep the public informed.
  - Warnings provided to disaster management authorities for necessary preparedness.
  - IMD offers Seasonal outlook and extended range forecast offering additional insights into temperature trends.
  - Daily forecasts for the next five days with real-time updates.
  - **Color-coded warnings** for severe weather events, including heat waves.
  - Cooperation with <u>National Disaster Management Authority</u> (NDMA) and local health departments for heat action plans.
  - Implementation of plans in vulnerable regions to minimize heat-related risks.



## What is Heat Index?

#### About:

- The Heat Index is a parameter that considers both temperature and humidity to calculate the apparent temperature or "feel like" temperature for human beings.
- It helps in understanding the impact of humidity on high temperatures and how it contributes to human discomfort during hot weather.
- The Heat Index has been launched on an experimental basis by the India Meteorological Department (IMD).
- It aims to provide general guidance for regions expe<mark>rienci</mark>ng higher apparent temperatures causing discomfort to people.

# Indication of Heat Stress:

- High Heat Index values indicate a greater risk of heat-related stress and health issues.
- It serves as a warning for potential heat-related illnesses and dangers.

#### Categorization of Heat Levels:

- The Heat Index categorizes the apparent temperature into different levels using color codes:
  - Green: Experimental heat Index less than 35°C.
  - Yellow: Experimental heat Index in the range 36-45°C.
  - Orange: Experimental heat Index in the range 46-55°C.
  - Red: Experimental heat Index greater than 55°C.

## Useful Tool for Public Health:

- By understanding the Heat Index, individuals and communities can take proactive steps to protect public health during heatwaves.
- It assists in making informed decisions and formulating heat action plans to ensure the well-being of the population.

## **UPSC Civil Services Examination, Previous Year Question (PYQ)**

## **Prelims**

# Q. What are the possible limitations of India in mitigating global warming at present and in the immediate future? (2010)

- 1. Appropriate alternate technologies are not sufficiently available.
- 2. India cannot invest huge funds in research and development.
- 3. Many developed countries have already set up their polluting industries in India.

# Which of the statements given above is/are correct?

- (a) 1 and 2 only
- **(b)** 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (a)

# **Mains**

Q. Bring out the causes for the formation of heat islands in the urban habitat of the world. (2013)

