

The climate of India during 2020

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In news

Recently, IMD issued a statement on the climate of India during 2020

Key highlights

Following are the key highlights of IMD's statements

- The Climate Research and Services (CRS) of the India Meteorological Department (IMD) has issued a Statement on Climate of India during 2020.
- According to it, the annual **mean land surface air temperature averaged over India during 2020 was above normal**. During the year, annual mean land surface air temperature averaged over the country was +0.29°C above normal (based on the data of 1981-2010).
- **The year 2020 was the eighth warmest year on record** since nation-wide records commenced in 1901.
- However, this is substantially lower than the **highest warming observed over India during 2016 (+0.71°C)**.
- The monsoon and post-monsoon seasons with mean temperature anomalies (Actual temperature-Normal temperature) of +0.43°C and +0.53°C respectively mainly contributed to this warming.
- Mean temperature during the winter was also above normal with anomaly of +0.14°C. However, during the pre-monsoon season temperature was below normal (-0.03°C).
- The Global mean surface temperature anomaly during 2020 (January to October as per WMO state of the global climate) is +1.2°C
- The 2020 annual rainfall over the country as a whole was 109% of its Long Period Average (LPA) based on the data

of 1961-2010.

- The monsoon season rainfall over the country as a whole was above normal and was 109% of its LPA.
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Key details

Temperatures:

- **2020 the eighth warmest year :** The 2020 annual mean land surface air temperature for the country was +0.290C above the 1981-2010 period average, thus making the year **2020 as the eighth warmest year on record since 1901**
- **The five warmest years on record in order were:** 2016 (+0.710C), 2009 (+0.550C), 2017 (+0.5410C), 2010 (+0.5390C), and 2015 (+0.420C).
- It may be mentioned that 12 out of 15 warmest years were during the recent fifteen years (2006-2020).
- **Warmest decades:** Past decade (2001-2010/ 2011-2020) was also the warmest decade on record with anomalies of 0.230C /0.340C.
 - The country averaged annual mean temperature during 1901-2020 showed an increasing trend of 0.620C/100 years with significant increasing trend in maximum temperature (0.990C/100 years) and relatively lower increasing trend (0.240C/100 years) in minimum temperature.
- The country averaged seasonal mean temperatures were also above the average during all the seasons except pre-monsoon season.
- The country averaged mean monthly temperatures were warmer than the normal during all the months of the year except March and June.

- The mean temperatures exceeded the normal during September (by 0.720C, warmest since 1901), August (by 0.580C, second warmest), October (by 0.940C, third warmest), July (by 0.560C, fifth warmest), and December (by 0.390C, seventh warmest).

Rainfall:

- The annual rainfall over the country was 109 % of long period average (LPA) of 117.7 cms.

Long Period Average (LPA) is the average rainfall recorded during the months from June to September, calculated during the 50-year period between 1951 and 2001. It is kept as a benchmark while forecasting the quantitative rainfall for the monsoon season every year.

- Time series of percentage departure of annual rainfall over the country as a whole since 1901 Rainfall over the country as a whole during the SW monsoon season (June-September), which is the principal rainy season of the country, was above normal (109 % of LPA of 88 cms).
- During this season, among the four broad geographical regions of the country, Central India, South Peninsular and East & Northeast India received seasonal rainfall of 115%, 129% and 106% of its LPA respectively, while Northwest India received seasonal rainfall of 84% of itsLPA.
- The 2020 Northeast monsoon season (October-December) rainfall over the country as a whole was normal (101% of LPA).
- The seasonal rainfall during the northeast monsoon season over the core region of the south peninsula (comprising of 5 subdivisions viz. Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu & Puducherry, South Interior Karnataka and Kerala), was also normal (110% of LPA).
- All the five subdivisions of the core region except

Kerala received excess/normal rainfall.

Tropical Storms in the Indian Seas:

- In 2020, 5 cyclones formed over the North Indian Ocean. These are
 1. Super cyclonic Storm AMPHAN
 2. Very Severe Cyclonic Storms NIVAR & GATI
 3. Severe Cyclonic Storm NISARGA, and
 4. Cyclonic Storm 'BUREVI'.
- Of these, NISARGA & GATI formed over Arabian Sea, while the remaining 3 cyclones viz. AMPHAN, NIVAR & BUREVI formed over the Bay of Bengal.
- Out of these five most devastating cyclones, the Super Cyclonic Storm AMPHAN formed in the pre-monsoon season and crossed West Bengal coast over Sundarbans on 20th May.
- The Severe Cyclonic Storm NISARGA, formed in the Monsoon season, crossed Maharashtra coast on 3rd June claimed 4 lives & 2000 livestock in Maharashtra.
- The remaining three cyclones viz. NIVAR, BUREVI & GATI formed during the post monsoon season.
- The Very Severe Cyclonic Storm NIVAR crossed Tamil Nadu & Puducherry coasts close to north of Puducherry and claimed many lives in Tamil Nadu & Andhra Pradesh.
- The Cyclonic Storm BUREVI claimed 9 lives & 200 livestock in Tamil Nadu.
- The VSCS "GATI" made landfall over Somalia coast. All these weather systems and their remnants and other low-pressure systems caused above normal rainfall over central and peninsular India.

High Impact Weather Events:

Bihar & Uttar Pradesh were the most adversely affected states during the year which reportedly claimed more than 350 deaths from each state mainly due to thunderstorms, lightning & cold

wave events.