



## Events of Extreme Weather

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### Why in News

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People around the world have been doubly hit by the **Covid-19 pandemic and extreme weather events** which experts say have been **fuelled by climate change**.

### Key Points

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- **Recent Extreme Weather Events:**
  - The **unprecedented heat wave** that drove temperatures across **Canada and parts of the United States to a record high**, causing hundreds of deaths between June 25 to 30.
  - The recent **floods in Germany** that killed over 180 people in the country.  
**Floods** have also been reported across **several Asian countries, in China, India and Indonesia**.
  - **Cyclones Tauktae and Yaas** that hit India's west and east coasts respectively.

- **Some Causes of Extreme Weather Events:**
  - **Extreme Temperature:**
    - The **temperature of the Earth is rising every year** and increasing temperature and extreme sunshine on top of it **creates a low-pressure system.**
    - Due to which the hurricanes and other tropical storms get their way to start.
  - **High Atmospheric Winds:**
    - The jet stream is found where the **cold air from Earth's poles meets with warm tropical air.**
    - These winds help to continue and control the weather system from west to east in the northern hemisphere and from east to west in the southern hemisphere.
    - Sometimes these winds bring unpleasant weather with them which may lead to the formation of a tornado.
  - **When Pressure Systems Meet:**
    - When **too cold high-pressure systems** meet with **too warm low-pressure systems**, the **chances of extremely high waves on sea surface** increases.
    - The too cold high-pressure systems originate from sub-polar land whereas too warm low-pressure systems originate from temperate seas.
  - **Improper Weather Systems:**
    - The weather systems (such as air masses, fronts, etc.) keep on moving in a proper way which helps to maintain the weather conditions in a smoother way.
    - When the weather conditions come across any disturbance in between, it **creates disasters.**
  - **Climate Change:**
    - The world temperature has increased quite high from the past few decades and even keeps on changing year after year.
    - One of the **big reasons** for the increase in Earth's temperature **is the level of CO<sub>2</sub>.**
    - As the **CO<sub>2</sub> is increasing in the atmosphere**, the temperature of the earth is also increasing simultaneously.
  - **Global Warming:**
    - As the world temperature is increasing due to global warming simultaneously the effects of it are also increasing.
    - Global warming is contributing to **intensifying heatwaves.**
    - Global warming also **boosts the amount of water vapor in the atmosphere** which may lead to causes of severe weather like heavy rainfall, heavy snowstorm, etc.

- **Concerns:**

- The rise in **average global temperature** is linked with **widespread changes in weather patterns**.
  - The **rising average global temperature** is making **heavy rainfall more likely**.
  - **Warmer air carries more moisture**, meaning that more water will be released eventually.
- **Extreme weather events** like **heat waves and extreme rainfall** are likely to become more frequent or more intense with **rising anthropogenic climate change**.

The Theory of **Anthropogenic Climate Change** is that **humans are causing most of the current changes** to climate by burning fossil fuels such as **coal, oil, and natural gas**.
- **Temperatures at the Earth's poles** are rising at two to three times the temperature at the equator.
  - This weakens the **jet stream of the mid-latitudes**, situated over Europe.
  - During summer and autumn, the weakening of the jet stream has a causal effect resulting in slower-moving storms.
  - This can result in more severe and longer-lasting storms with increased intensity.
- Also, according to a study, **human-induced global warming** has contributed to the increased frequency and intensity of **cyclonic storms over the Arabian Sea**.

- **Related Initiatives:**

- **National Action Plan on Climate Change (NAPCC)**
- **India's Intended Nationally Determined Commitments (INDC)** under Paris Climate Deal.

**Source: IE**