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## State of the Global Climate 2020: WMO

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### Why in News

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Recently, the **World Meteorological Organization (WMO)** released its annual **State of the Global Climate for 2020**.

- The report was released ahead of the **Leaders Summit on Climate**, hosted by the US.
- Extreme weather combined with **Covid-19** was a double blow for millions of people in 2020. However, the **pandemic-related economic slowdown failed to put a brake on climate change drivers and accelerating impacts**.

### Key Points

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- **Global Temperature:**
  - 2020 was one of the three warmest years on record, despite a cooling **La Niña** event.
    - The global average temperature was about **1.2° Celsius above the pre-industrial (1850-1900) level**.
    - The other two warmest years are **2016** and **2019**.
  - The **six years since 2015 have been the warmest on record**.  
2011-2020 was the warmest decade on record.
- **Greenhouse Gases:**
  - **Emission of major greenhouse gases increased in 2019 and 2020**.  
It will be **higher** in **2021**.
  - **Concentrations** of the major greenhouse gases in the air **continued to increase in 2019 and 2020**.
  - Globally, averaged **mole fractions** of carbon dioxide (CO<sub>2</sub>) have already exceeded 410 parts per million (ppm), and if the CO<sub>2</sub> concentration follows the same pattern as in previous years, it could reach or exceed 414 ppm in 2021.  
**Mole fraction** represents the **number of molecules of a particular component in a mixture divided by the total number of moles** in the given mixture. It's a way of expressing the concentration of a solution.

- **Oceans:**

- In 2019, the oceans had the **highest heat content** on record. In 2020, it has broken this record further. Over **80% of the ocean area experienced at least one marine heatwave in 2020.**

A marine heatwave is defined when **seawater temperatures exceed a seasonally-varying threshold for at least 5 consecutive days.**

- The percentage of the ocean that experienced “**strong**” marine heat waves (**45%**) was greater than that which experienced “**moderate**” marine heat waves (**28%**).

- **Sea-level Rise:**

- Since record-taking started in 1993 using the satellite altimeter, sea-level has been rising. It is **due to the La Niña induced cooling.**
- Sea level has recently been rising at a higher rate **partly due to the increased melting of the ice sheets in Greenland and Antarctica.**

- **The Arctic and the Antarctica:**

- In 2020, the **Arctic sea-ice extent came down to second lowest** on record. The 2020 minimum extent was **3.74 million square kilometre**, marking **only the second time** (after 2012) **on record that it shrank to less than 4 million sq km.**

- In a large region of the Siberian Arctic, **temperatures in 2020 were more than 3°C above average.**

A record temperature of 38°C was noted in the town of **Verkhoyansk, Russia.**

- The **Antarctic sea-ice extent remained close to the long-term average.**
  - However, the Antarctic ice sheet has exhibited a strong mass loss trend since the late 1990s.
  - This trend accelerated around 2005, and **currently, Antarctica loses approximately 175 to 225 Gigaton per year**, due to the increasing flow rates of major **glaciers** in West Antarctica and the Antarctic Peninsula.

- **Extreme Weather Events in India:**

- India **experienced one of its wettest monsoons since 1994**, with a seasonal surplus of 9% that led to **severe floods and landslides.**
- **Cyclone Amphan**, which hit Kolkata in May 2020, has been named as the **costliest tropical cyclone for the North Indian Ocean region** that brought about an estimated loss of USD 14 billion.

- **Climatic Impact:**
  - **Extreme Weather Situations:**
    - Along with the pandemic, people across the world struggled to survive as they faced extreme weather in the form of storms, cyclones, heavy rainfall and record heat.
    - **Response and recovery** to people hit by cyclones, storms and similar extreme weather was **constrained throughout the pandemic in 2020.**
  - **Human Mobility Issues:**
    - Mobility restrictions and economic downturns owing to Covid-19 **slowed down delivery of humanitarian assistance** to vulnerable and displaced populations, who live in dense settlements.
    - The **pandemic added further dimension to human mobility concerns**, highlighting the need for an integrated approach to understanding and addressing climate risk and impact on vulnerable populations.

## **World Meteorological Organization**

- **About:**
  - It is an **intergovernmental organization** with a **membership of 192 Member States and Territories. India is a member.**
  - It originated from the **International Meteorological Organization (IMO)**, which was established after the 1873 Vienna International Meteorological Congress.
- **Establishment:**

Established by the ratification of the WMO Convention on 23<sup>rd</sup> March 1950, WMO became the **specialized agency of the United Nations** for meteorology (weather and climate), operational hydrology and related geophysical sciences.
- **Headquarters:**

Geneva, Switzerland.

**Source: DTE**