

11– 04 – 2024

- News: State of the Global Climate 2023 Report
- Recently, the World Meteorological Organization (WMO) has released its State of the Global Climate 2023 report, which highlights that the heat content of the world's oceans reached a record high in 2023.

Key Highlights of the Report

Record-High Ocean Heat Content

- The heat content of the world's oceans reached a record high in 2023, with the highest level of ocean heat content ever recorded.
- This increase in ocean heat content is attributed to anthropogenic climate drivers such as greenhouse gas (GHG) emissions and changes in land use.

Contrasting Heating and Cooling Patterns in the North Atlantic

- While the majority of the world's oceans are experiencing warming, relatively small regions, such as the subpolar North Atlantic Ocean, are experiencing cooling.
- This cooling is linked to the slowdown of the Atlantic Meridional Overturning Circulation (AMOC), a system of ocean currents.

- AMOC is a system of ocean currents that circulates water within the Atlantic Ocean, bringing warm water north and cold water south.

Global Average Sea-Surface Temperatures

- Global average sea-surface temperatures (SST) were at a record high in 2023, with several months breaking previous records by significant margins.
- Exceptional heating was observed in various regions including the eastern North Atlantic, the Gulf of Mexico, the Caribbean, the North Pacific, and large areas of the Southern Ocean.

Marine Heatwaves and Ocean Acidification

- The global ocean experienced an average daily Marine Heatwave coverage of 32%, well above the previous record of 23% in 2016.
- At the end of 2023, most of the global ocean between 20° S and 20° N had been in heatwave conditions since early November.
- The end of 2023 saw a broad band of severe and extreme marine heatwave across the North Atlantic, with temperatures 3°C above average.
- These heat waves have negative repercussions for marine ecosystems and coral reefs. Additionally, ocean acidification has increased due to the absorption of carbon dioxide by the oceans.

Global Mean Near-Surface Temperature

- The global mean near-surface temperature in 2023 was 1.45 ± 0.12 °C above the pre-industrial 1850–1900 average, making it the warmest year on record.
- Every month from June to December was record warm for the respective month, and the long-term increase in global temperature is attributed to increased concentrations of greenhouse gases in the atmosphere.

Accelerating Glacial Retreat and Antarctic Sea Ice Loss

- Glaciers worldwide experienced the largest loss of ice on record, driven by extreme melt in both western North America and Europe.
- Antarctic sea ice extent reached an absolute record low for the satellite era, and Arctic sea ice extent remained well below normal.

Increased Frequency and Intensity of Extreme Weather Events

- Extreme weather events such as heatwaves, floods, droughts, wildfires, and tropical cyclones had major socio-economic impacts on all inhabited continents.
- Flooding linked to extreme rainfall from Mediterranean Cyclone Daniel affected Greece, Bulgaria, Türkiye, and Libya with particularly heavy loss of life in Libya in September 2023.

- Tropical Cyclone Freddy in February and March 2023 was one of the world's longest-lived tropical cyclones with major impacts on Madagascar, Mozambique and Malawi.
- Tropical Cyclone Mocha in 2023 was one of the most intense cyclones ever observed in the Bay of Bengal and triggered 1.7 million displacements across the sub-region from Sri Lanka to Myanmar and through India and Bangladesh, and worsened acute food insecurity.

Renewable Energy Surge

- Renewable energy generation surged in 2023, with renewable capacity additions increasing by almost 50% from the previous year.
- This growth indicates the potential for achieving decarbonisation targets and transitioning to clean energy sources to mitigate climate change.

Climate Financing Challenges

- In 2021/2022, global climate-related finance flows reached almost USD 1.3 trillion, nearly doubling compared to 2019/2020 levels. Even so, tracked climate finance flows represent only approximately 1% of global GDP.
- There is a large financing gap. In an average scenario, for a 1.5°C pathway, annual climate finance investments need to grow by more than six times,

reaching almost USD 9 trillion by 2030 and a further USD 10 trillion through 2050.

- Adaptation finance continues to be insufficient. Though adaptation finance reached an all-time high of USD 63 billion in 2021-22, the global adaptation financing gap is widening, falling well short of the estimated USD 212 billion per year needed up to 2030 in developing countries alone.