



State of the Global Climate 2022: WMO

For Prelims: [WMO](#), [GHG](#), [Glaciers](#), [Ocean Acidification](#), [Rainfall](#), [Heatwave](#)

For Mains: State of the Global Climate 2022.

Why in News?

Recently, the [World Meteorological Organization \(WMO\)](#) has released the State of the Global Climate Report 2022.

- The report focuses on key climate indicators - [Greenhouse Gasses](#), Temperatures, [Sea level rise](#), [Ocean Heat and Acidification](#), Sea ice and [Glaciers](#). It also highlights the impacts of **climate change and extreme weather**.
- Earlier, the WMO released the [provisional State of the Global Climate report, 2022](#).

What are the Findings of the Report?

- **Temperature**
 - Global mean temperature in 2022 was 1.15 °C above the 1850-1900 average.
 - The years 2015 to 2022 were the **eight warmest in the instrumental record** back to 1850.
 - This was despite three consecutive years of a cooling [La Niña](#) - such a “triple-dip” [La Niña](#) has happened only three times in the past 50 years.
- **Greenhouse Gasses:**
 - Concentrations of the three main GHG, Carbon dioxide, Methane, and Nitrous oxide, reached record highs in 2021.
 - The annual increase in methane concentration from 2020 to 2021 was the highest on record.
- **Sea Level Rise:**
 - Global mean sea level (GMSL) continued to rise in 2022, reaching a new record high for the satellite altimeter record.
 - For the period 2005-2019, total land ice loss from glaciers, Greenland, and Antarctica contributed **36% to the GMSL rise**, and ocean warming contributed 55%.
- **Ocean Heat:**
 - Ocean heat content reached a new record high in 2022.
 - Around 90% of the energy trapped in the climate system by greenhouse gases goes into the ocean, somewhat ameliorating even higher temperature increases but posing risks to marine ecosystems.
- **Ocean Acidification:**
 - CO₂ reacts with seawater resulting in a decrease of pH referred to as ‘**ocean acidification**’, threatening organisms and ecosystem services.
 - The [IPCC Sixth Assessment Report](#) concluded that “There is very high confidence that open ocean surface pH is now the lowest it has been for at least 26 [thousand years] and current rates of pH change are unprecedented since at least that time.

- **Sea Ice:**
 - Sea ice in [Antarctica](#) dropped to 1.92 million km² in February 2022, the lowest level **on record and almost 1 million km² below the long-term (1991-2020) mean.**
- **Glaciers:**
 - Glaciers are losing a lot of ice, with a thickness change of over (-) 1.3 meters on average between **October 2021 and October 2022**, which is much larger than the average of the past decade.
 - The [European Alps](#) saw **record glacier melt due to a lack of winter snow**, dust from the Sahara in March 2022, and heatwaves from May to early September.

What are the Impacts of Such Record Highs In Climate Indicators?

- **Drought in East Africa:**
 - [Rainfall](#) has been **below-average in five consecutive wet seasons**, the longest such sequence in 40 years. As of January 2023, it was estimated that over 20 million people faced acute food insecurity across the region, under the effects of the drought and other shocks.
- **Record Breaking Rain in Pakistan:**
 - Total damage and economic losses were assessed at USD 30 billion.
 - July (181% above normal) and August (243% above normal) were each the wettest on record nationally.
 - The flooding in Pakistan affected some **33 million people, including about 8,00,000 Afghan refugees** hosted in affected districts.
- **Heat Waves in Europe:**
 - In some areas, [extreme heat](#) was coupled with exceptionally dry conditions. Excess deaths associated with the **heat in Europe exceeded 15, 000** in total across Spain, Germany, the UK, France, and Portugal.
 - China had its most **extensive and long-lasting heatwave since national records began**, extending from mid-June to the end of August and resulting in the hottest summer on record by a margin of more than 0.5 °C. It was also the second-driest summer on record.
- **Food Insecurity:**
 - As of 2021, 2.3 billion people faced [food insecurity](#), of which 924 million people faced severe food insecurity.
 - Projections estimated 767.9 million people facing undernourishment in 2021, 9.8% of the global population.
 - Half of these are in **Asia and one third in Africa.**
- **Pre-Monsoon Heat Waves in India and Pakistan:**
 - Pre-monsoon season Heatwaves in India and Pakistan in caused a **decline in crop yields.**
 - This, combined with the **banning of wheat exports and restrictions on rice exports** in India after the start of the [conflict in Ukraine](#), threatened the availability, access, and stability of staple foods within international food markets and posed high risks to countries already affected by shortages of staple foods.
- **Displacement:**
 - In Somalia, almost 1.2 million people became internally displaced by the catastrophic impacts of drought on pastoral and farming livelihoods and hunger during the year, of whom more than 60,000 people crossed into Ethiopia and Kenya during the same period. Concurrently, Somalia was hosting almost 35,000 refugees and asylum seekers in drought-affected areas.

What is the World Meteorological Organization (WMO)?

- The WMO is an **intergovernmental organization with a membership of 192** Member States and Territories.
 - India is a member of WMO.
- It originated from the **International Meteorological Organization (IMO)**, which was established after the 1873 Vienna International Meteorological Congress.
- Established by the ratification of the WMO Convention on 23rd March 1950, WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational

hydrology and related geophysical sciences.

- WMO is headquartered in **Geneva, Switzerland**.

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