A Two-Day Residential Classroom-based Training Program on

Extreme Heat Prevention and Management

03-04-Feb-2023, Seminar Hall, GIDM

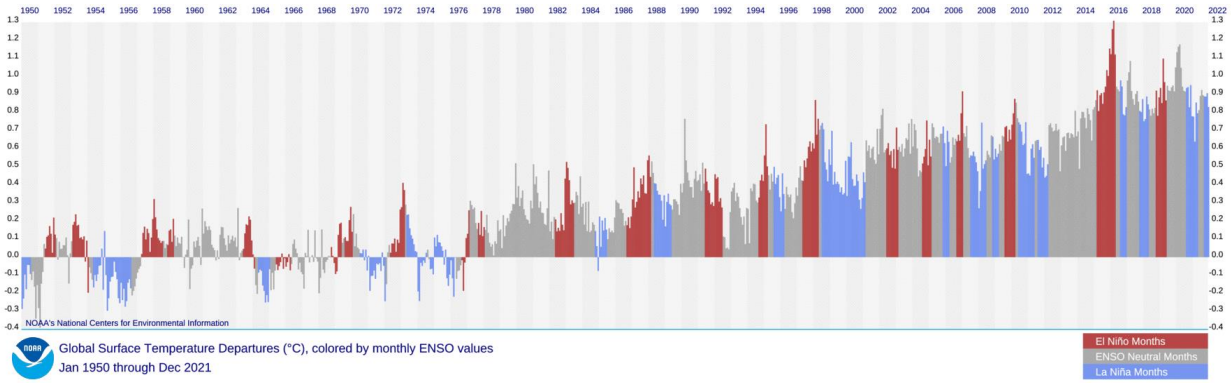
1. Background

The growing bodies of evidence are suggesting that due to human induced climate change, extreme weather events like extreme heat spells and heatwaves will become more frequent, intense. and long-lasting in the 21st century and we are already witnessing this happen. Each passing year is setting a new record of extreme heat. The world recorded its hottest decade ever from the year 2010 to 2019 and in that too year 2015 to 2019 were the hottest five years of world recorded ever in the history of mankind.

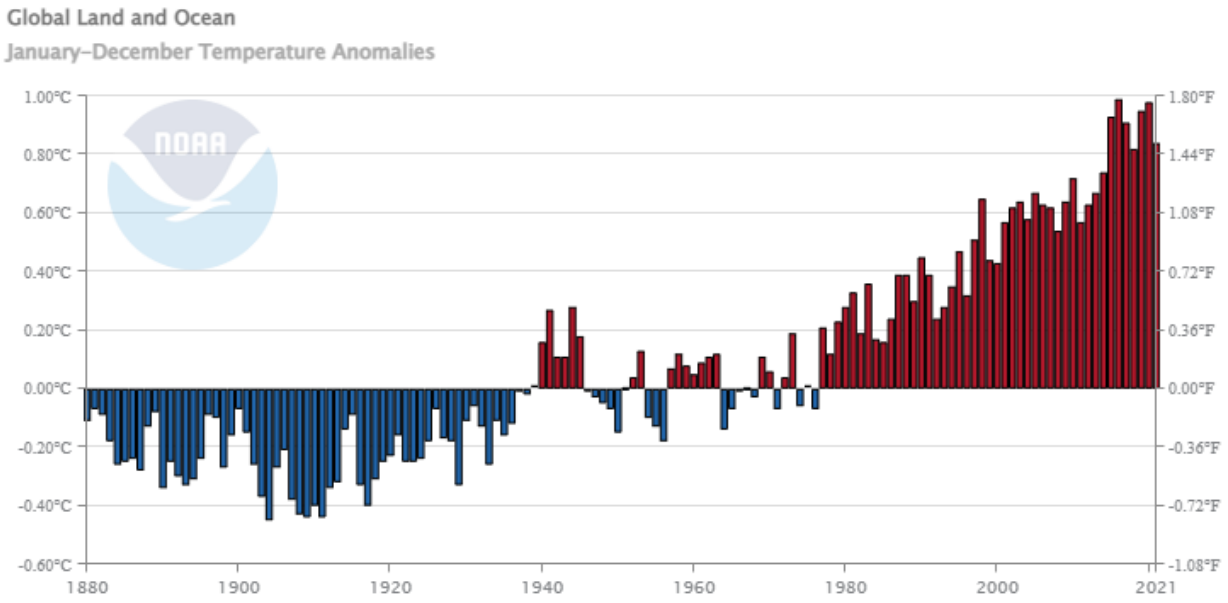
Recent international climate change and public health analyses underscore the intensifying human health dangers of climate change-fueled heatwaves. Global estimates indicate that by 2030 and 2050, an additional 90,000 and 255,000 people, respectively, could die prematurely each year because of climate change-worsened heat waves. The impacts of rising temperatures extend far beyond health to include damage to agriculture, marine ecosystems such as coral reefs, and vital infrastructure, and worker productivity. A recent analysis estimated that heat and humidity and heat cause 677 billion hours of lost labor worth $2.1 trillion each year. The heat problem is especially risky in developing countries that are already coping with intense temperatures. According to climate and weather experts at the India Meteorological Department, the number of heatwave days across the country is increasing at a rapid pace, a pattern that is persistent across most the 103 weather stations in the country. And extreme heat in India is already deadly: in 2019, extreme heat caused nearly 47,000 premature deaths in India,

1.1 Global Temperature Anomalies

The year 2021 began with an episode of cold phase El Niño Southern Oscillation (ENSO) episode, also known as La Niña, across the central and eastern tropical Pacific Ocean, which had developed in August 2020. As seen in the graph below, ENSO can have an effect on global temperatures. La Niña episodes tend to cool global temperatures slightly, while the warm phase ENSO (also known as El Niño) tends to boost global temperatures. Although the monthly global temperatures were above average throughout the year, February 2021 was the coldest month of 2021 for the globe. The global temperature departure for February 2021 was +0.64°C (+1.15°F) — the coolest February since 2014. However, after the month of February, temperatures were at 0.80°C (1.44°F) or higher for the remaining months of 2021.

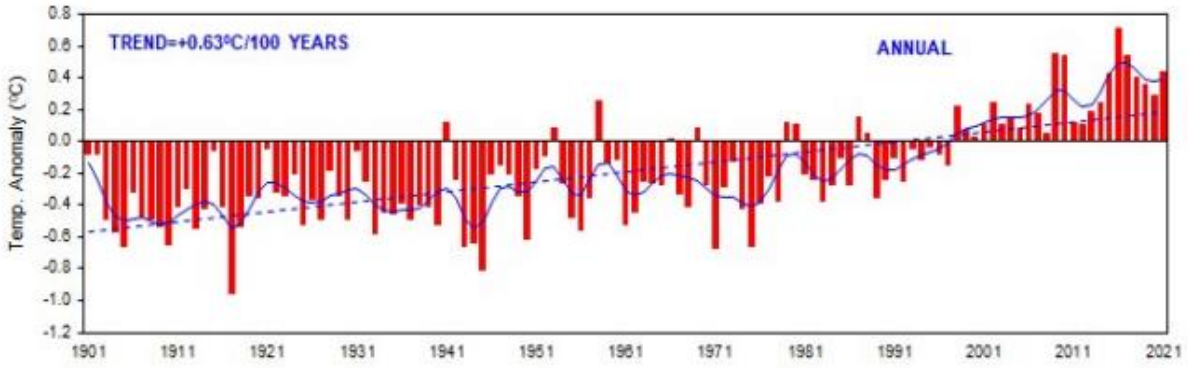


The year culminated as the sixth warmest year on record for the globe with a temperature that was 0.84°C (1.51°F) above the 20th century average. The years 2013–2021 all rank among the ten warmest years on record. The year 2021 was also the 45th consecutive year (since 1977) with global temperatures, at least nominally, above the 20th century average. Of note, the year 2005, which was the first year to set a new global temperature record in the 21st century, currently ties with 2013 as the 10th warmest year on record and 2010 ranks as the ninth warmest on record. Overall, the global annual temperature has increased at an average rate of 0.08°C (0.14°F) per decade since 1880 and over twice that rate (0.18°C / 0.32°F) since 1981.



1.2 Temperature Anomalies in Indian Context

The annual mean temperature for the country was +0.44 °C above the 1981-2010 average, thus making the year 2021 as the fifth warmest year on record since 1901. The other 4 warmest years on record in order were: 2016 (anomaly +0.71 °C), 2009 (0.55 °C), 2017 (0.54 °C), 2010 (+0.539 °C). It may be mentioned that 11 out of the 15 warmest years were from the recent past fifteen years (2007-2021). In addition, the past decade (2011-2020/2012-2021) was the warmest decade on record with anomalies of 0.34 °C / 0.37 °C above average. During 1901-2021, the annual mean temperature showed an increasing trend of 0.63 °C/100 years with significant increasing trend in the maximum temperature (0.99 °C /100 years), and relatively lower increasing trend (0.26 °C/100 years) in the minimum temperature.



2. Why Capacity Building on Extreme Heat Prevention and Management

1. Exposure to extreme heat affects health directly, exacerbating underlying conditions such as cardiovascular and respiratory disease, and causing heat stroke, adverse pregnancy outcomes, worsened sleep patterns, poor mental health, and increased injury-related death
2. India saw a 55% rise in deaths due to extreme heat between 2000-2004 and 2017-2021, a recent study published in the medical journal, The Lancet, has found
3. Exposure to heat also caused a loss of 167.2 billion potential labour hours among Indians in 2021 resulted in loss of incomes equivalent to about 5.4% of the country's GDP
4. In March-April 2022, India experienced a hetwave that was 30times more likely to have happened because of climate change
5. Changing Climate is exacerbating the risk of infectious disease outbreaks and threatening global food security with heatwave days associated with more people experiencing food security in 2020 than in 1981-2010

6. Other ways in which climate change is amplifying the health impacts of multiple crises, is the reduction of duration of growth season of crops – maize, rice and winter wheat
7. Coordinated prevention mechanism is required to reduce and manage the heat related emergencies

3. Target Departments

Health and Family Welfare Department, viz. CDHOs, ADHOs, THOs, RMOs, Medical Officer of CHCs and PHCs, Doctors and Administrative Staff from IMA (Pvt. Hospitals) working with the Department from across all Districts

4. Objective of the Programme

i. To develop a sound understanding about Extreme Heat Prevention and Management
ii. To enhance the knowledge of participants in Disaster Risk of Extreme heat
iii. To encourage Heatwave preparedness among the stakeholders
iv. To promote the use of Heatwave Early Warning and indigenous technologies for building resilience
v. To encourage recording of heat related death data

5. Schedule

Date:	3-4 Feb 2023	
Target Dept.:	Health & Family Welfare Department	
Target participant:	CDHOs, ADHOs, THOs, RMOs, Medical Officer CHCs and PHCs, Doctors and Administrative Officer from IMA (Private Hospital)	
Programme Mode	Residential	
Time	**Topic**	**Partner Agency/ Resource person**
DAY-1: 3rd Feb 2023		
10.00hrs - 10.30hrs	Registration	GIDM
10.30hrs-10.45hrs	Pre-Test	GIDM
10.45hrs -11.45hrs	Basics of Disaster Risk Management	Shri Ankur Shrivastava, ROPM, SAARC
11.45hrs-12.00hrs	**TEA BREAK**	
12.00hrs-13.00hrs	Global Perspectives in Disaster Risk management	Shri Piyush Ramteke, RSPM, GIDM
13.00hrs-14.00hrs	**LUNCH**	
14.00hrs–15.00hrs	Understanding Extreme Heat and Heatwave	NDMA
15.00hrs-15.15hrs	**TEA BREAK**	
15.15hrs–16.15hrs	Disaster Risk of Extreme Heat	Shri Repaul Kanji, ROPM, GIDM
DAY-2: 4th Feb 2023		
10.30hrs-11.30hrs	Heatwave Early Warning and Forecast of the current Year	IMD
11.30hrs-11.45hrs	**TEA BREAK**	

11.45hrs -13.00hrs	Public Health Impacts of Heatwave	IIPH
13.00hrs-14.00hrs	**LUNCH**	
14.00hrs–15.00hrs	Heatwave Preparedness and Response	GSDMA
15.00hrs-15.15hrs	**TEA BREAK**	
15.15hrs-15.30hrs	Post-test	GIDM
15.30hrs-16.00hrs	Valedictory Session	GIDM