EXTREME HEAT ACTION PROFILE

# World Meteorological Organization (WMO)

www.wmo.int

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WMO and the WMO community around the world uses climate and weather information to help decision-makers prepare for extreme heat through research, weather and climate services, and fostering multidisciplinary partnerships to catalyze heat action.

WMO is the United Nations system's authoritative voice on weather, climate, and water. As part of its mandate, WMO works with National Meteorological and Hydrological Services (NMHS) to observe, predict, and provide services related to extreme heat.

WMO fosters international cooperation on characterising and sharing heatwave information and works to verify record-breaking temperatures. WMO collaborates and works closely with the National Meteorological and Hydrological Services (NMHS) in all of WMO members' countries to increase capabilities and capacities, and to modernise early warning systems for extreme events, including heatwaves, so that countries can coordinate and implement heat action plans that enable effective action at the local community level.


**Lead Heat Entities:**

WHO-WMO Joint Office for Climate and Health

**Technical Focal Points:**

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**Erica Allis**, Chief, Disaster Risk Reduction Partner Engagement and Coordination Section


## KEY FACTS

### The year 2024 was the warmest year in the 175-year observational record, after an extended streak of exceptionally high monthly global mean temperatures.

The global mean near-surface temperature in 2024 was 1.55 (±0.13) °C above the 1850-1900 average. Each of the past ten years—2015 to 2024—was individually one of the ten warmest years on record

State of the Global Climate 2024

### Ocean heat content in 2024 was the highest on record.

In 2024, ocean heat reached the highest level in the 65-year observational record, exceeding the previous record high set in 2023. In addition, over the past eight years, each year has set a new record for ocean heat content.

State of the Climate 2024

### Only 54% of National Meteorological and Hydrological Services provide extreme heat warnings.

Of these 104 National Meteorological and Hydrological Services (NMHS), 78 monitor, forecast and warn for extreme temperatures; 9 provide thermal human heat budget information; and 2 monitor, forecast and warn for heatwave intensity.

WMO State of Climate Services 2023

### Only 26 countries have climate-informed heat-health early warning systems.

A strong income disparity also exists: half of the very high Human Development Index (HDI) countries have HHEWSs to monitor extreme weather events, compared with just 19% of low or medium HDI countries. These data, from the WHO, suggest that low HDI countries are proportionally less prepared to address extreme weather.

WMO State of Climate Services 2023

## Early Warnings for All (EW4All)

WMO is a leading partner in the United Nations' Early Warnings for All (EW4All) initiative which aims to ensure that everyone on Earth has access to multi-hazard early warnings by 2027. WMO drives global action to help countries implement heat warning services that enhance preparedness, enable anticipatory action, and ultimately safeguard lives and livelihoods.

**Core Partners:** UNDRR, IFRC, ITU, Partnership across the United Nations, International Agencies, and International Financing Institutions and national implementing partners

## WMO Research Activities

WMO research programmes contribute an understanding of the behavior and impact of increasing global temperatures on the earth system and society.

- **World Climate Research Programme** (WCRP), in partnership with UNESCO and ISC, advances understanding of interactions between natural and social systems affecting climate.
- **Global Atmosphere Watch** (GAW) develops a coordinated global understanding of atmospheric composition, changes, and interactions with oceans and ecosystems.
- **World Weather Research Programme** (WWRP) focuses on improving weather prediction and its societal impacts, from minutes to months.

**Core Partners:** UNESCO, International Science Council (ISC), Member States

Featured initiative

### Global Heat Health Information Network

The WMO-WHO Joint Office for Climate and Health, in collaboration with key partners, hosts the Global Heat Health Information Network—an independent, voluntary, and member-driven forum uniting scientists, practitioners, and policymakers focused on improving capacity to protect populations from the avoidable health risks of extreme heat in our changing climate.

The Network focuses on partnerships, capacity building, heat vulnerability science, impact research, heat prediction services, intervention scoping, communication,and outreach.

**Core Partners:** WHO, NOAA

**www.ghhin.org**

## Intergovernmental Panel on Climate Change (IPCC)

The IPCC, established by WMO and UNEP, provides governments with the latest scientific insights to guide climate policies and inform international climate negotiations. Extreme heat has been a key focus of its work, including in the Sixth Assessment Report.

**Core Partners:** UNEP

## Commission for Weather, Climate, Hydrological, Marine and Related Environmental Services and Applications (SERCOM)

SERCOM supports the WMO Strategic Plan by developing globally harmonized services and applications, aiming to enhance informed decision-making and provide socioeconomic benefits to various sectors. SERCOM supports work on extreme heat, notably the Standing Committee on Climate Services (SC-CLI) and the Standing Committee on Disaster Risk Reduction and Early Warning Services (SC-DRR).

**Core Partners:** SERCOM expert task team members and study groups

## Climate Services

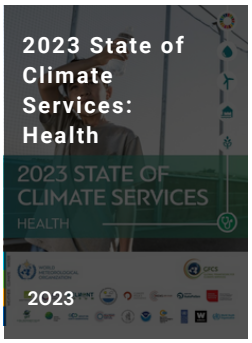
Regional Climate Centres (RCC) and Regional Climate Forums (including Regional Climate Outlook Forums, RCOF) help translate climate outlooks and projections including related to temperature into actionable insights for societal applications.

## Severe Weather Forecasting Programme (SWFP)

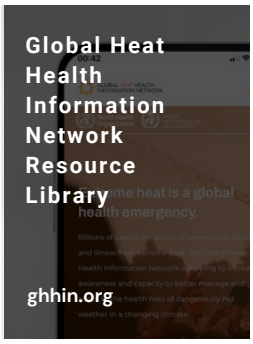
The Severe Weather Forecasting Programme (SWFP), in collaboration with Public Weather Services (PWS), supports Impact-Based Forecasting and Warning Services (IBFWS) which provide timely, accurate, actionable information on the likelihood and severity of impacts, supporting people, communities, and governments to prepare for and respond to weather hazards, including excessive heat as feasible in the relevant subregions.

**Core Partners:** National Meteorological and Hydrological Services and technical partnerships

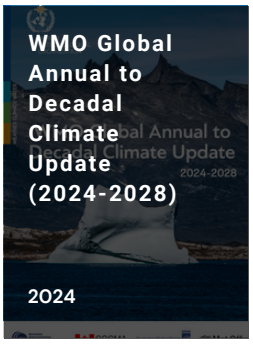
## HEAT RESOURCES

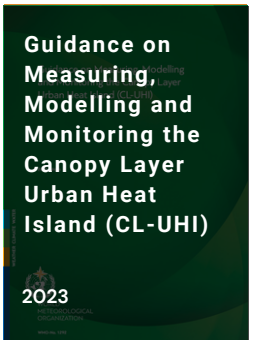




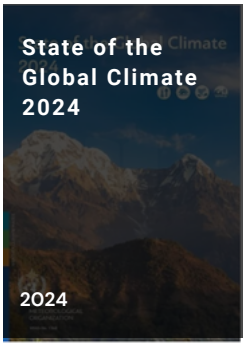






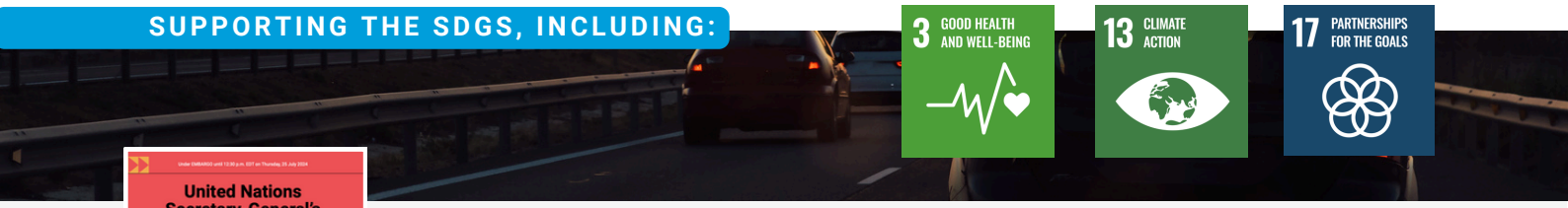

### Foundational documents governing institutional heat activities

**EC-76 Res.17 on WMO Heat and Health Activities**
It promotes integrated heat-health early warning systems, impact-based advisories, and action plans, while emphasizing WMO's co-sponsorship of the Global Heat Health Information Network (2022–2027 period) to strengthen capacity building and deliver integrated climate and health services.

**WMO Strategic Plan 2024-2027**
WMO's Strategic Plan outlines it's overarching priorities, long-term goals and strategic objectives that underpin its work on heat, including as it relates to the UN Early Warnings for All initiative.

**EC-78/Doc 3.1 on WMO Road Map for the Early Warnings for All Initiative**
WMO's Road Map for Early Warnings for All Initiative outlines the vision, objectives and actions to enhance the delivery and use of multi-hazard early warning systems, with categorization of heatwaves as a meteorological/synoptic hazard.

## SUPPORTING THE SDGS, INCLUDING:





This heat action profile was developed by the Global Heat Health Information Network in partnership with the World Meteorological Organization (WMO) and the UN Office for Disaster Risk Reduction (UNDRR), as a contribution to the United Nations Secretary-General's Call to Action on Extreme Heat (2024). The content was validated by focal points from the profiled international organization / agency, and captures a snapshot of its heat work at the time of publication. The profile will be periodically updated.

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GLOBAL HEAT HEALTH INFORMATION NETWORK
WORLD METEOROLOGICAL ORGANIZATION
UNDRR UN Office for Disaster Risk Reduction