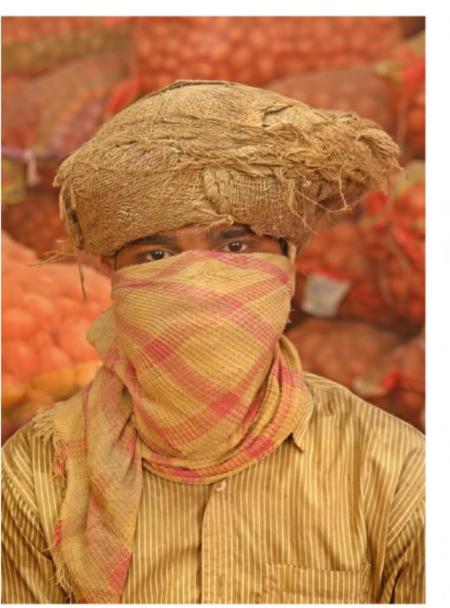


# Perspectivas globales:

Red global de información sobre calor y salud

Joy Shumake-Guillemot

26-27 August 2019 Santiago Chile









Joint WHO and WMO Health, Environment, and Climate Action Plan

# 4 themes





**Air Quality** 











Water

**Extremes &**Health Emergencies

**Urban Areas** 

10 Fast-track activities

# WMO Cg-18 Resolution 33 Advances Integrated Urban & Health Services

# Resolution 5.5/1: Integrated Urban Services

WMO Commitment to integrating information to support impact-based forecasting and warning for disasters.

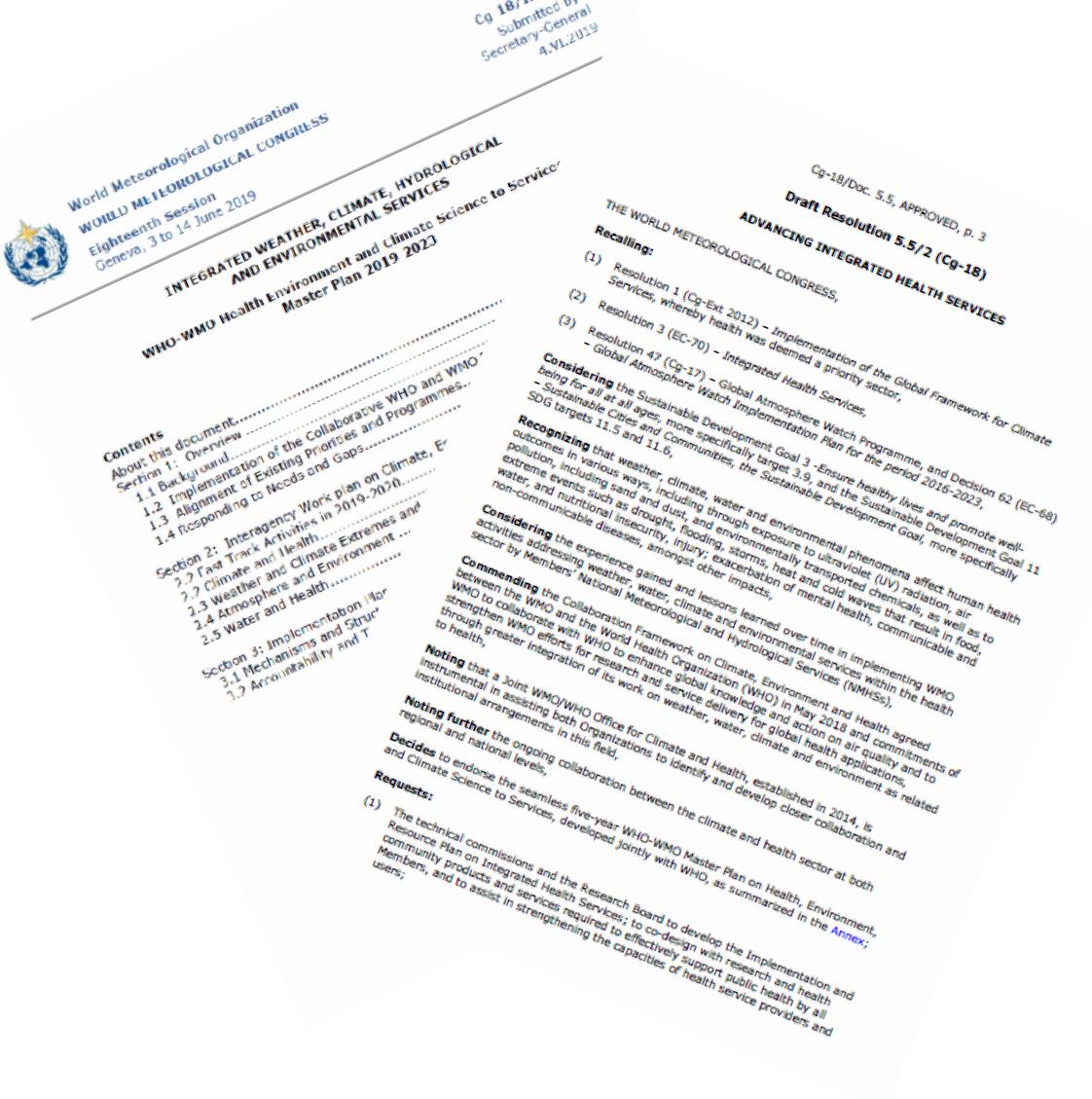
Developing collaborative framework and implementation plan.

# Resolution 5.5/2: Integrated Health Services

WHO/WMO Joint Action on Health, Environment, Climate, implementation and resource plan.

NMHS/RCCs nominate health focal point.

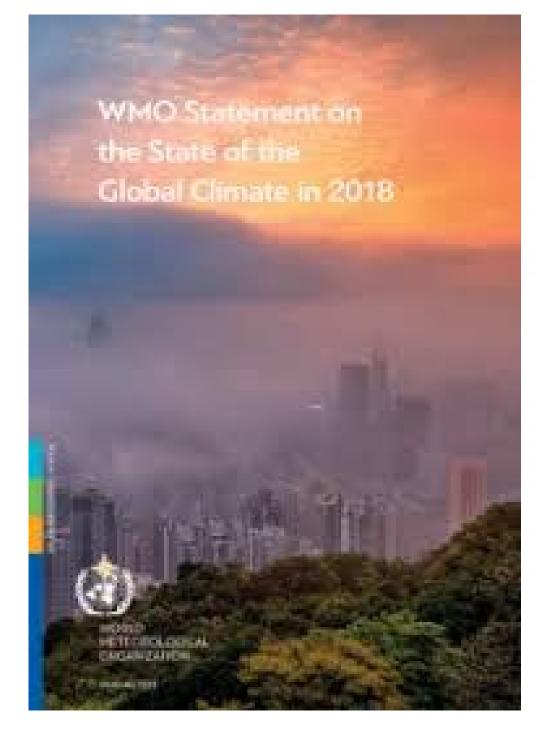
10 Priority Activities

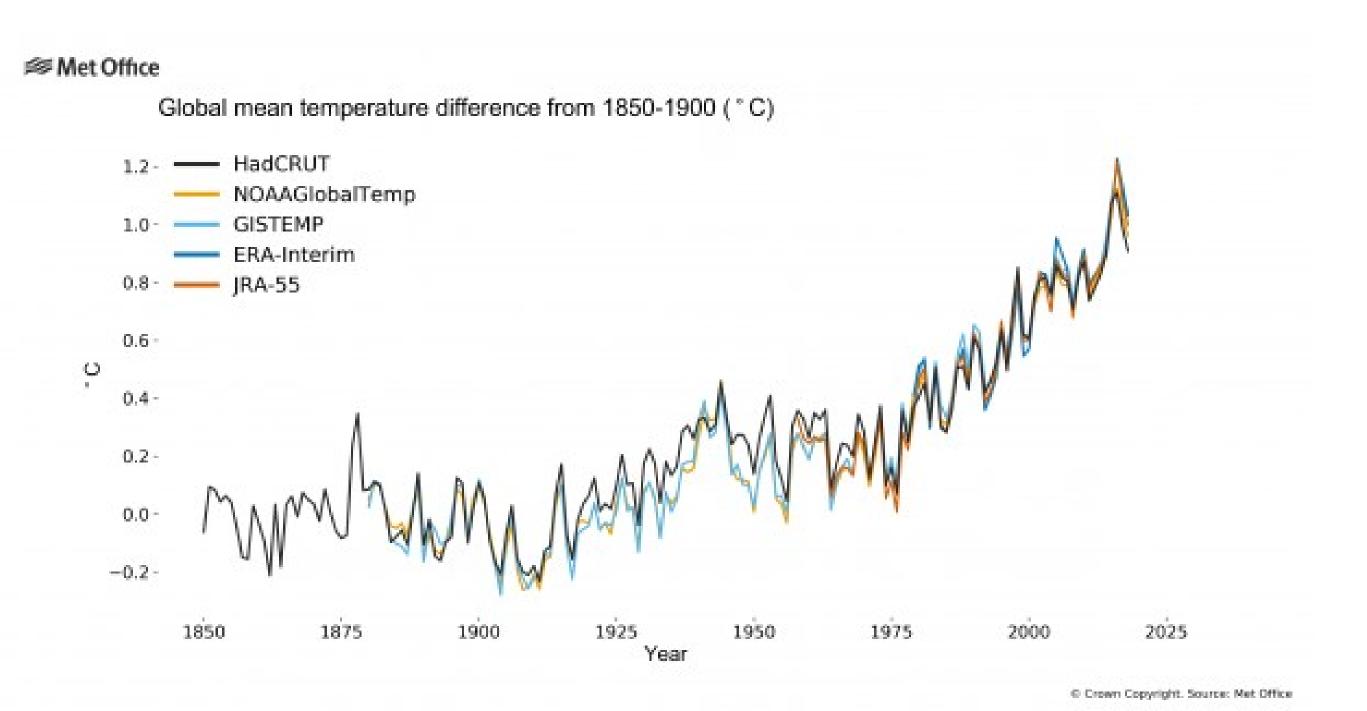




# A WARMING WORLD

The hottest 20 years on record have occurred in the past 22 years, with the hottest 4 years between 2015-2018.







# Selected Significant Climate Anomalies and Events June 2019

# **ARCTIC SEA ICE EXTENT**

June 2019 sea ice extent was 10.5 percent below the 1981–2010 average—the second smallest June sea ice extent since satellite records began in 1979, behind 2016.

# ASIA

As a whole, Asia had its eighth warmest June on record.

# ALASKA

Alaska had its second warmest June since statewide records began in 1925.

**CONTIGUOUS UNITED STATES** 

Above- to much-above-average precipitation

was observed across parts of the Mississippi

and Ohio Valleys and along much of the East

the ongoing flooding issues in those locations.

Coast during June 2019, contributing to



# EUROPE

Europe had its warmest June on record. Several European countries had a top five warm June: Austria (1st), Germany (1st), Hungary (1st), Switzerland (2nd), France (5th).



# **HONG KONG**

Hong Kong's June 2019 mean temeprature ranked among the three highest June temperatures on record.



# HAWAIIAN REGION

**SOUTH AMERICA** 

The Hawaiian region had its highest June temperature departure from average on record.

South America had its highest June temperature on record. Argentina had its fifth warmest June on record.



# KINGDOM OF BAHRAIN

The nationally averaged June 2019 mean temperature was the highest for June since national records began in 1902.



# **AFRICA**

June 2019 was Africa's warmest June on record.



# **AUSTRALIA**

Drier-than-average conditions continued to affect Australia during June 2019. Overall this was the nation's 25th driest June on record. Regionally, New South Wales had its lowest June precipitation total since 1986.



# ANTARCTIC SEA ICE EXTENT

June 2019 sea ice extent was 8.5 percent below the 1981–2010 average—the smallest June sea ice extent on record.





Selected Significant Climate Anomalies and Events July 2019

# GLOBAL AVERAGE TEMPERATURE

July 2019 average global land and ocean temperature was the highest for July since records began in 1880.

# **ARCTIC SEA ICE EXTENT**

July 2019 sea ice extent was 19.8 percent below the 1981-2010 average—the smallest July sea ice extent since satellite records began in 1979.

# **ASIA**

As a whole, Asia had its eighth warmest July on record.

# ALASKA

Alaska had its warmest July since statewide records began in 1925.

(July 11–19, 2019)

**HURRICANE BARRY** 

Maximum winds - 120 km/h

Slow-moving Barry brought flash floods to Louisiana and Arkansas. New all-time state

record for most rainfall received from a tropical system was set in Arkansas.



# **EUROPE**

Europe had its 15th warmest July on record. Another intense heat wave affected Europe during July, with several countries setting new national temperature records.



Several stations across Israel had record-breaking temperatures during July.



# **HONG KONG**

Hong Kong's July 2019 minimum temperature was the highest for July on record.



# **HAWAIIAN REGION**

**SOUTH AMERICA** 

record.

South America had its 12th highest July temperature on

The Hawaiian region had its second highest July temperature departure from average on record, behind 2015.



# KINGDOM OF BAHRAIN

The nationally averaged July 2019 mean temperature was the third highest for July since national records began in 1902.



# **AUSTRALIA**

Warmer-than-average conditions engulfed much of Australia during July 2019, resulting in the fourth highest July mean temperature for the nation.



# **AFRICA**

July 2019 was Africa's warmest July on record.



# **NEW ZEALAND**

New Zealand had its second warmest July on record.



# ANTARCTIC SEA ICE EXTENT

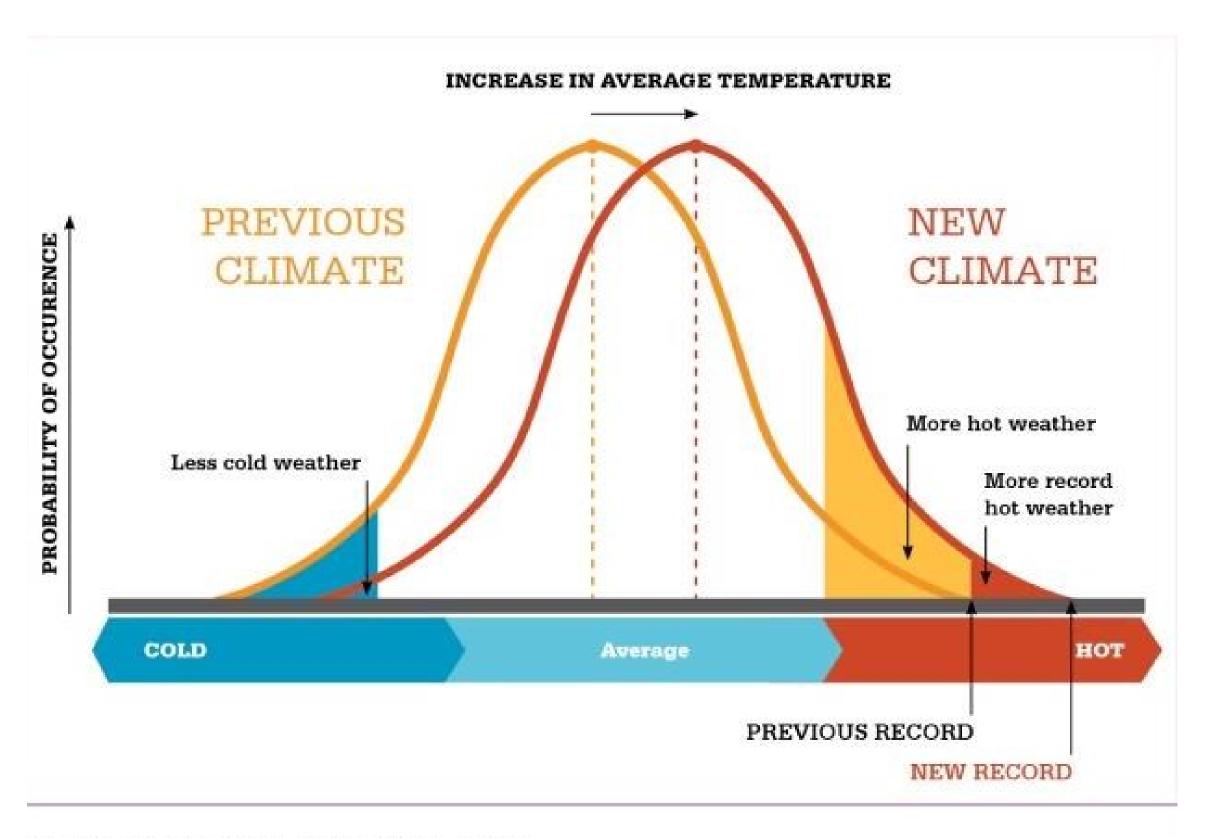
July 2019 sea ice extent was 4.3 percent below the 1981–2010 average—the smallest July sea ice extent on record.





# **INCREASED RISK**

Climate Change makes extreme weather more likely, and an urgent health threat for humans.



Source: Modified from IPCC, 2007

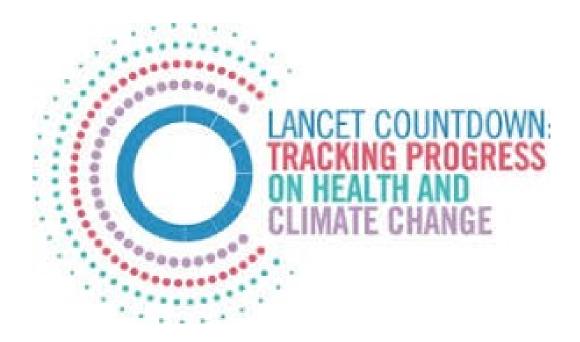
www.climatecommission.gov.au



# LATEST RESEARCH

New research from 27 global institutions published in the Lancet finds that our vulnerability to heat is unacceptably high and rising in all regions of the world.

Outdoor workers, people with underlying health conditions and the urban elderly are especially at risk.



- 157 million more vulnerable people were subjected to a heatwave last year than in 2000, and 18 million more than in 2016.
- 153 billion hours of work were lost in 2017 due to extreme heat as a result of climate change. China alone lost 21 billion hours, the equivalent of a year's work for 1.4% of their working population. India lost 75 billion hours, equivalent to 7% of their total working population. New methodologies have captured this data for the first time.
- Rising ambient temperatures are placing vulnerable populations at increased risks across all regions of the world. Europe and the East Mediterranean are particularly at risk, most likely due to ageing populations living in cities, with 42% and 43% of over 65s vulnerable to heat exposure markedly higher than Africa (38%) and southeast Asia (34%).
- Heat greatly exacerbates urban air pollution, with 97% of cities in low- and middle- income countries not meeting WHO air quality guidelines.
- Heat stress, an early and severe effect of climate change, is commonplace and we, and the health systems we rely on, are ill-equipped to cope.
- The mean global temperature change to which humans are exposed is more than double the global average change, with temperatures rising 0.8°C versus 0.3°C. assuming each person experienced a heatwave once.

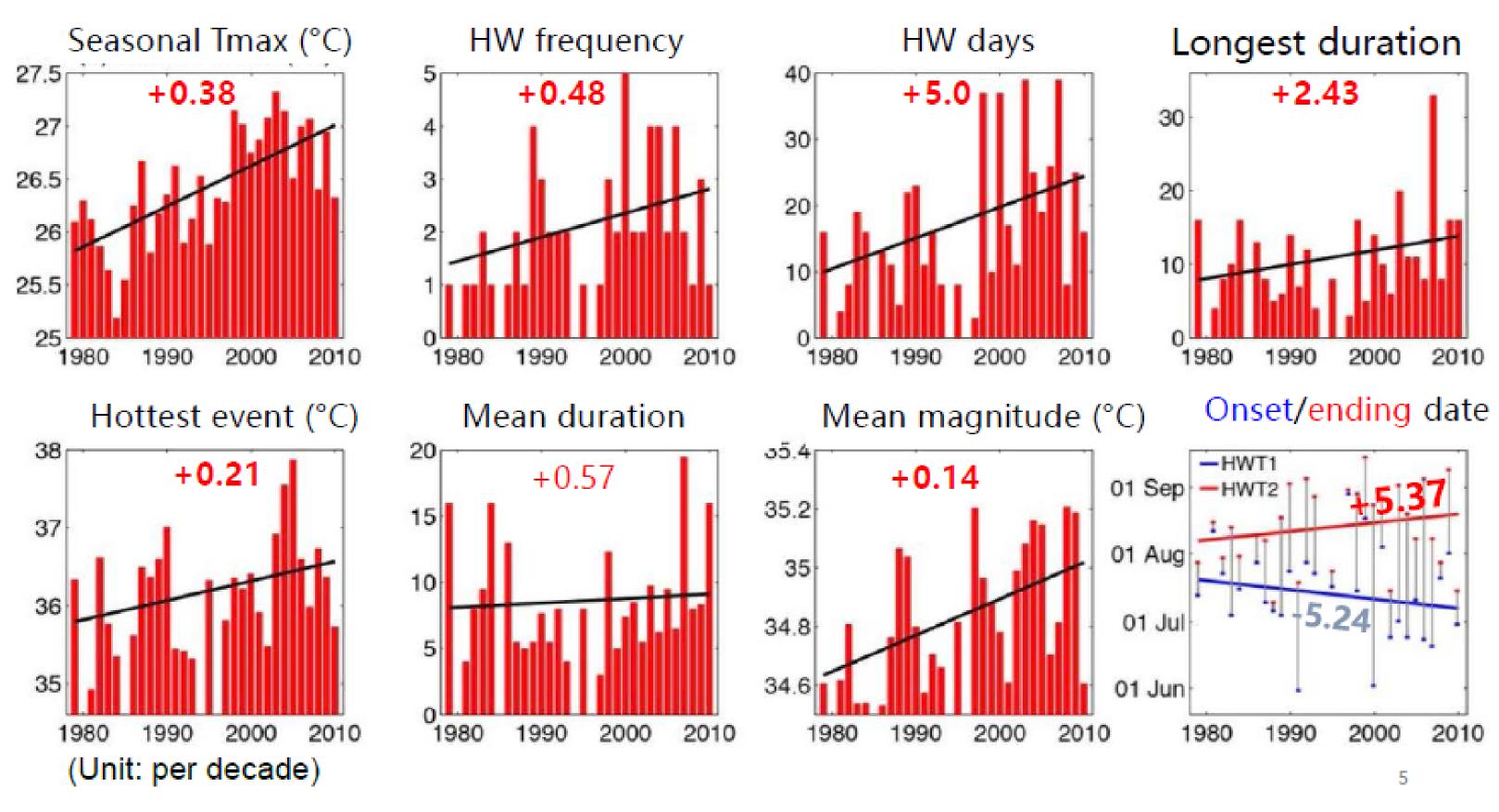
Source: The Lancet Countdown on Health and Climate Change 2018



# HEATWAVE CHARACTERISTICS

# Southern China 1980-2010 (weather stations)

- Higher seasonal temperatures and a longer heat season
- More frequent, longer and hotter heatwaves



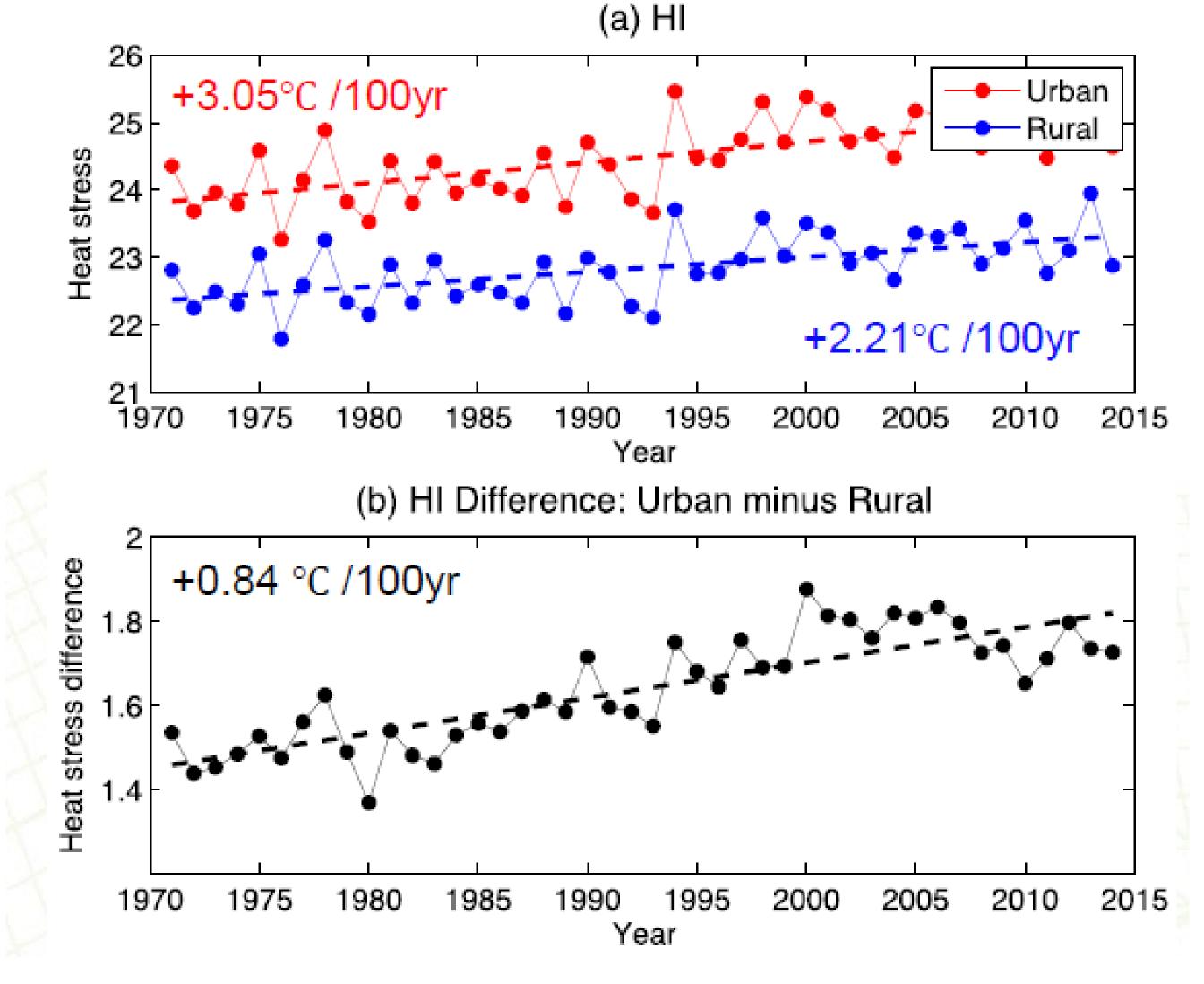
Source: Prof. Gabriel Lau / Chinese University Hong Kong



# HEATWAVE CHARACTERISTICS

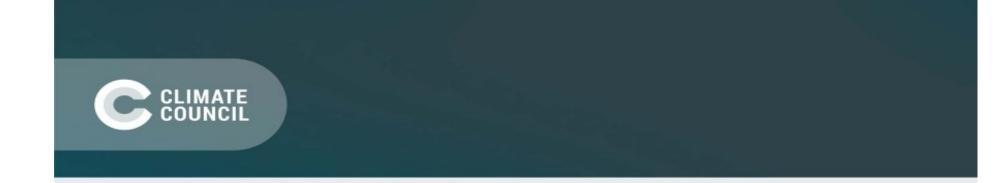
# Differences in Mean heat index in Urban/Rural Areas in Southern China

Cities are warming at a higher rate



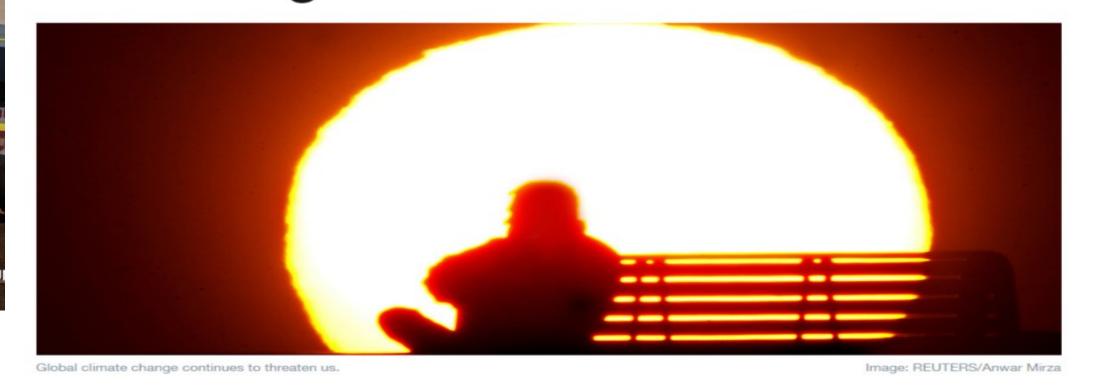
Source: Prof. Gabriel Lau / Chinese University Hong Kong





# THE SILENT KILLER: CLIMATE CHANGE AND THE HEALTH IMPACTS OF EXTREME HEAT





William Yu is giving a tour of a Hong Kong apartment where each of the three

hadraama has been divided into a conserte flat - next of a lab ha has not up to



This article is published in collaboration with



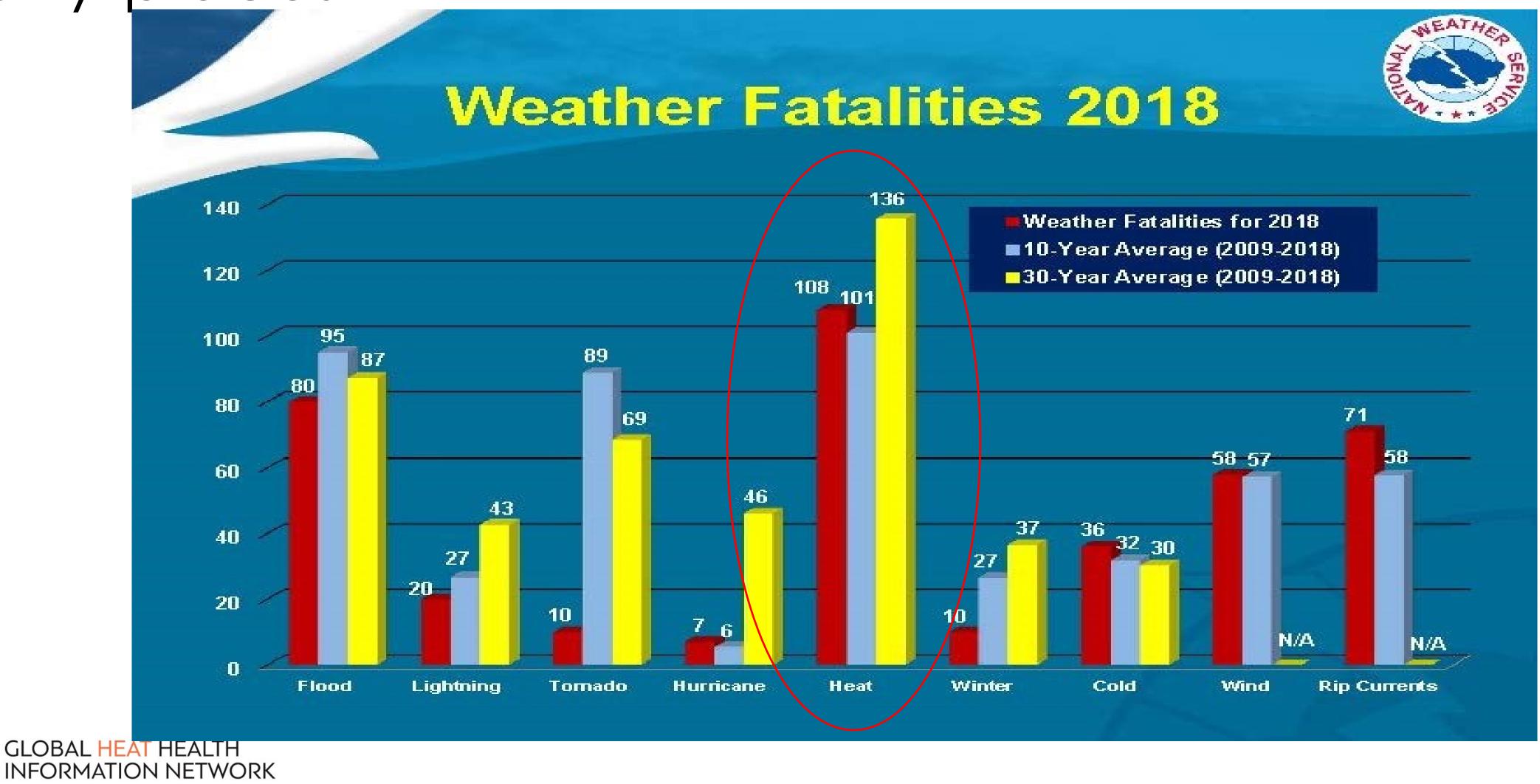
India Prime Minister:Heat Wave grips India – Know why Heat waves are called Silent Disaster – Current Affairs 2018



Extreme Heat is a disaster!

Heat is the leading cause of weather-related death in

many places





# HEAT RISK AMPLIFIES OTHER DISASTER RISKS

# Co-occurrence with

Droughts
Fire
Hazardous Air Quality
Cyclones
Infrastructure Outage

Heat itself is often not considered a disaster, it is not factored into emergency management planning as it should be.

USA, 2017: Hurricane Irma knocks out power, amplifying impacts of a concurrent heatwave.



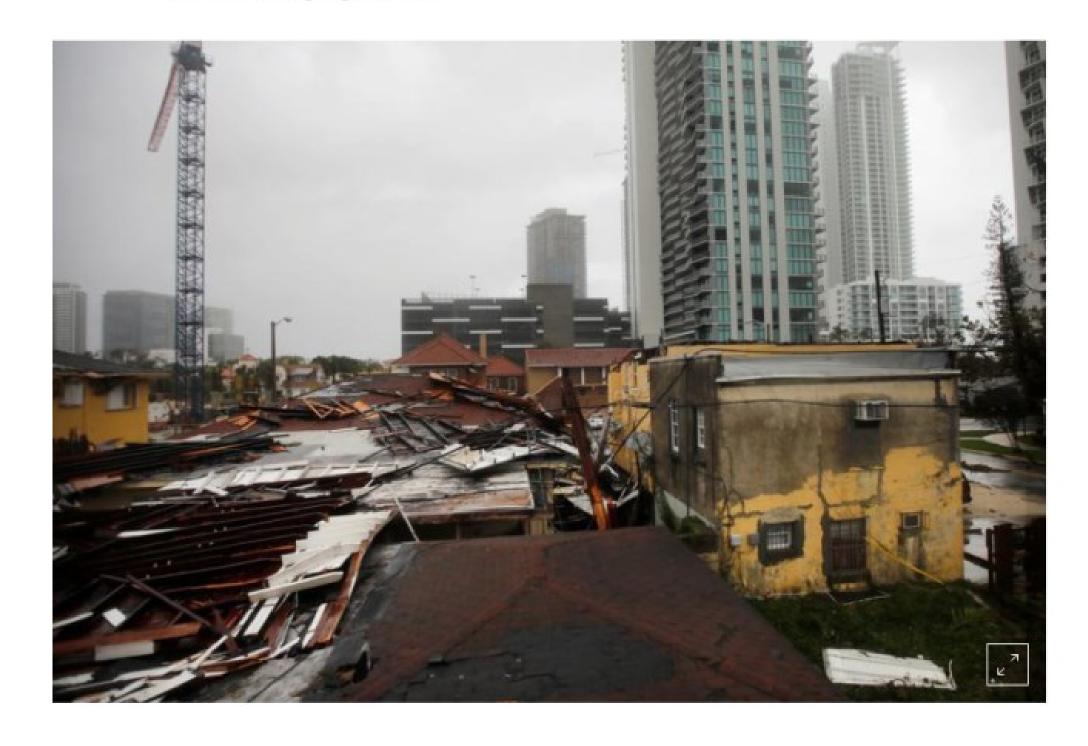
# With Irma - and a power failure - Miami gets a taste of deadly heat

Adriana Brasileiro

9 MIN READ

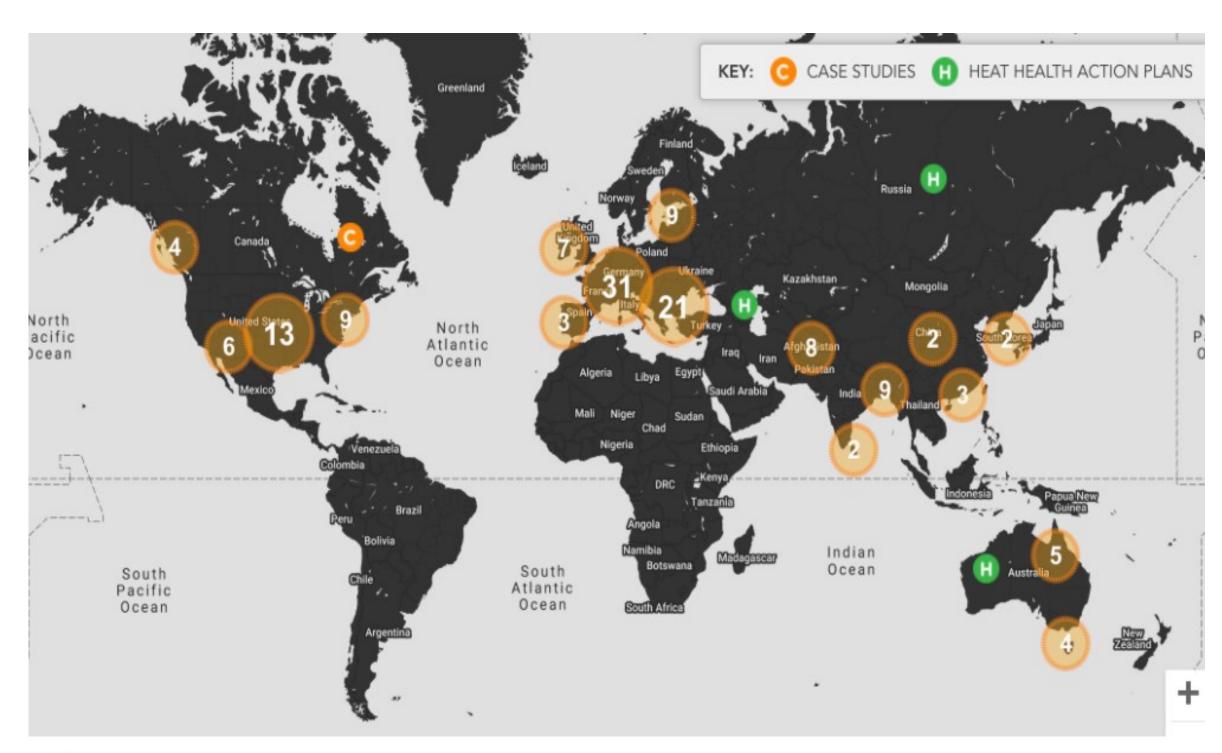


MIAMI (Thomson Reuters Foundation) - Miami is a city that lives on air conditioning. When it fails, people can die.



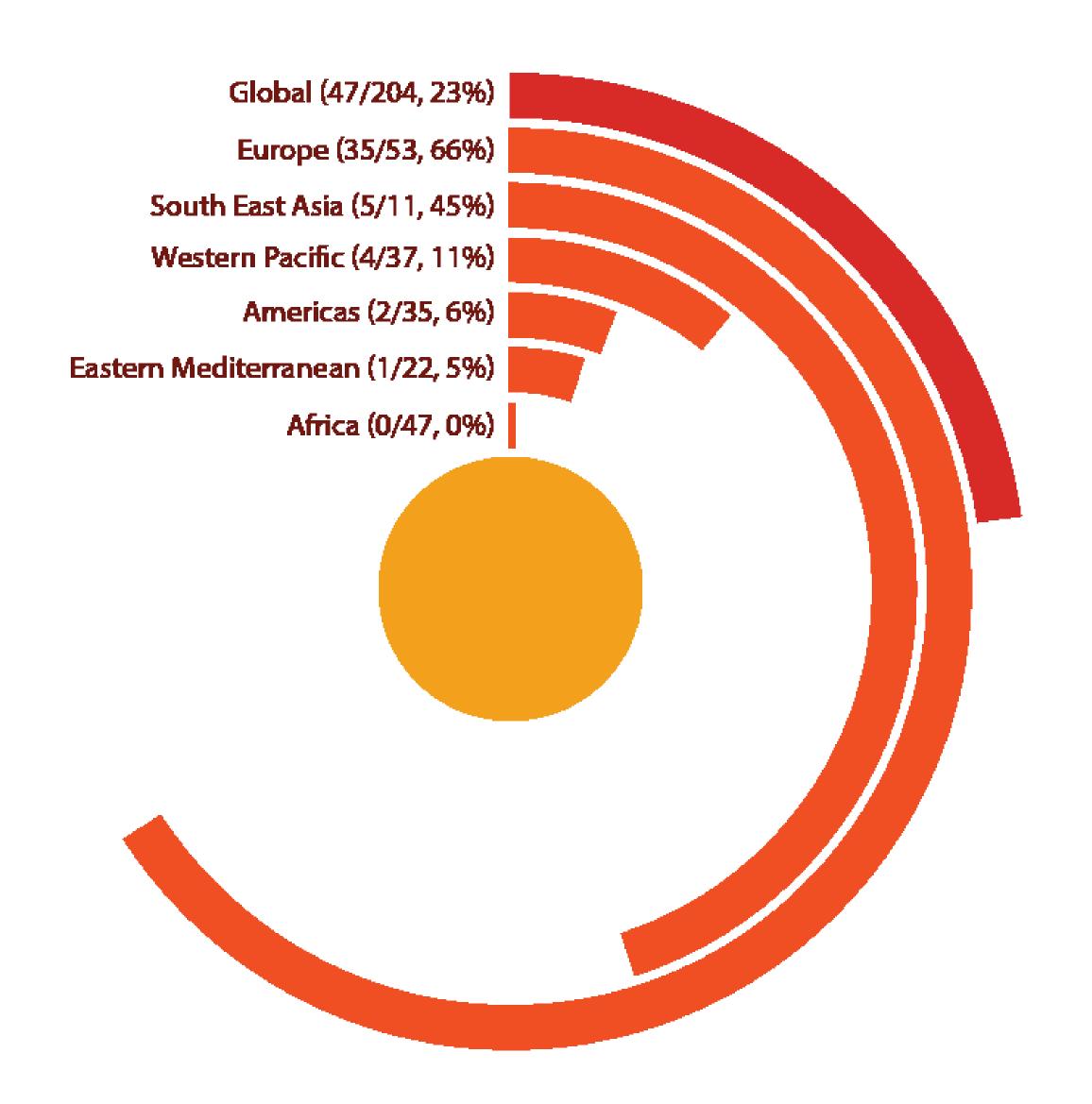


# We are unprepared for a warming future, but can do more together, faster.





# **Countries with Heat Health Action Plans**



# **OUR VALUE**

# Why now?

- Urgency: Extreme heat is an urgent issue. We need a more active conversation, evidence and information to drive action and advocacy.
- Connectivity: Many nations, organizations, and individuals are working on pieces of the problem and finding creative solutions, but knowledge transfer and harmonization is lacking.
- Capacity: Capacity is still limited and exists in disparate pockets, especially in high risk parts of the world.

- **Information:** A better understanding of heat risks and a push to drive evidence and risk information into policy and action is needed.
- Monitoring: We need to better document events and impacts, how we are reacting, what the emerging issues are, and whether we are getting ahead of the risks?

# **Bottom line:**

We can prevent a grand majority of heat impacts, but we are missing opportunities to work together more, better, and faster.



# Our Network is enhancing efforts to address heat health risk.

GHHIN is a forum for scientists and practitioners, enhancing global-to-local learning for heat health risk reduction.





# WHO WE ARE

The Network is an independent, voluntary, memberdriven forum of scientists, professionals, and policymakers focused on enhancing existing efforts to address heat health risk.

It seeks to be a **catalyst**, **knowledge broker and forum** for facilitating exchange, learning and identifying needs.





Member-driven forum



Go-to resource hub



Knowledge Broker



Not a funding or grant-making mechanism



# **OUR MEMBERS**

# Diverse expertise and perspectives

Our members self-select, enhancing inclusion of a broad range of organizations and professionals from around the world.

# Compatible motivation

GLOBAL HEAT HEALTH INFORMATION NETWORK

The mission and values of our members are expected to be compatible with the GHHIN vision.

# Scientific integrity and shared principles

Members will be encouraged to uphold scientific integrity and principles of good public health practice.

Includes: Government agencies / academic institutions / international organizations / NGOs / private sector boundary institution / individuals in relevant fields

# Founding members













**Boston University** 

Collaborating Centre for Oxford University and CUHK for Diaster and Medical Humanitarian Response

**Durham University** 

Deutscher Wetterdienst

Imperial College London

World Health Organization



World Meteorological



**UK Met Office** 



U.S. National Oceanic and Atmospheric Administration



NRDC Natural Resources Defence Council



Public Health England

University of Washington, School of Public Health



Climate Services for Resilient Development



Global Framework for Climate Services





# **GHHIN OBJECTIVES**

Awareness

 urgently improving awareness of the disaster that increasing extreme heat poses to human health, wellbeing, and productivity worldwide 2 Partnership

catalyzing and sustaining interdisciplinary partnerships and colearning between research and practitioners across relevant government, academic, private sector and civil society bodies

3.
Synthesis

 synthesizing and advancing science and technology available for decision making and risk reduction across sectors and time scales 4. Expertise

 improving access to expert resources and opportunities for learning, exchange, and engagement 5. Leadership

 identifying and promoting action to address critical gaps in research, knowledge and action





# WHAT WE DO

We improve the capacity of governments, organizations, and professionals to protect populations from the avoidable health risks of extreme ambient heat.



Country profiles



Online platform



Global synthesis report

# **FOCUS**

The Network brings together the work and progress of its members to create a more holistic picture of the needs, science, and strengths across the network.



Global forum



Learning exchange



Moving towards:
Affiliated research
projects, technical
working groups



# COMMON SCIENCE PILLARS OF HEAT-HEALTH

- Capacity and partnerships to manage heat risk
- Understanding heat risk: research, vulnerability and impacts
- Observation, data and forecasting, and early warning products for action
- Actions to manage heat risks: interventions and effectiveness
- Engagement, outreach and communication

Community building and knowledge brokering



Scientific synthesis and technical harmonization



# Relevant Projects

# KNOWLEDGE BROKERING

# Online Learning Centre













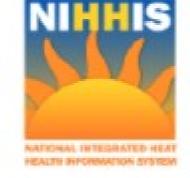
Climate Services for Resilient Development

Tackling extreme heat – changing behaviours, changing policy PROJECT: Deepening and Expanding Heat Health Action in India Protecting Urban
Livelihoods from Climate
Change - Building Heat
Stress Resilience amongst
Da Nang City's most
Vulnerable Worker

Addressing the negative impact of increased workplace heat stress on the health and productivity of five strategic European industries: manufacturing, construction, transportation, tourism and agriculture.

ACASIS : Alerte aux Canicules Au Sahel et à leurs Impacts sur la Santé













Red Cross Red Crescent CLIMATE CENTRE: reducing the impacts of climate change and extreme weather events on vulnerable people NIHHIS helps decision makers prepare for extreme heat events days, months, and years in the future. UCAR: Heat Wave Awareness Project Heat Wave Risk Perceptions EuroHEAT online heatwave forecast Developing mitigation and risk prevention and management strategies concerning the urban heat island (UHI)phenomenon





World Urban Database





HIWeather



World Weather Research Programme



#HEATHEALTH www.ghhin.org

# KNOWLEDGE BROKERING

# Online Learning Centre

# **Explore**

Publications & Guidance Academic Literature Heat Health Projects Tools for Heat Health

Glossary

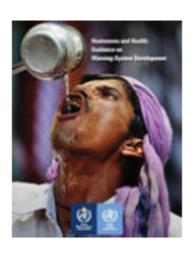
# **Recommended Resources**



Call to Action from the First Global Forum on Heat and Health



Heatwave Guide for Cities (IFRC)



Heatwaves and Health: Guidance on Warning-System Development (WHO/WMO)



Heat Health Action Plans (WHO)



Heatwaves and Human Health (USAID)



# KNOWLEDGE BROKERING

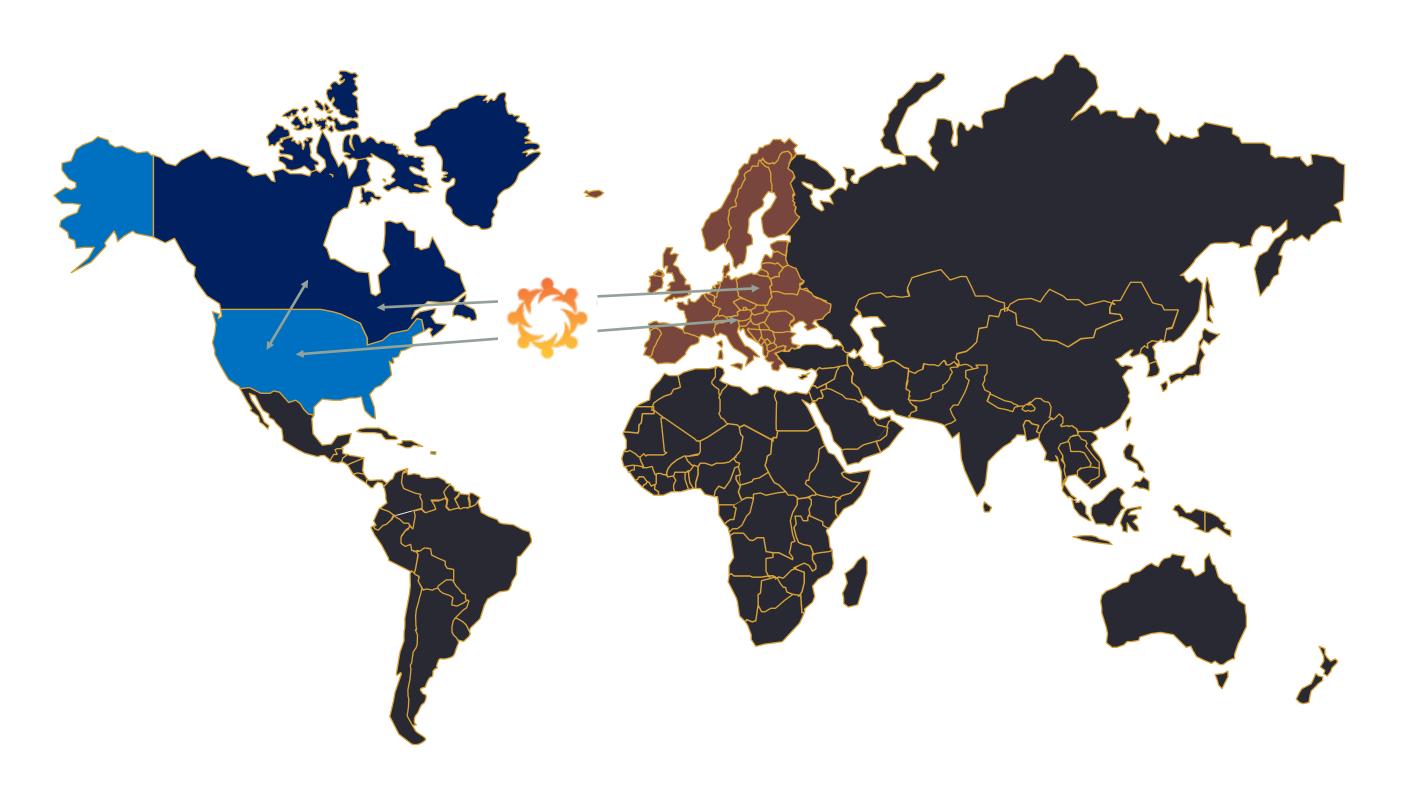
# Learning Exchange

Twinning learning and teaching opportunities through:

- Workshops
- Webinars and Teleconferences
- Hands-on training placements
- Development of training materials and courses on relevant subjects
- Professional mentoring

# **Assessment of Heat Action Plan Intervention Effectiveness**

Conversation – observation – relationship building



Currently taking place in US, Canada, Europe – but not informed by one another.



# Monthly Newsletter



# Global Heat Health Digest

August 2019

Knowledge and information to address the global challenges of extreme heat and human health



# Upcoming Expert Debrief on 2019 Heatwaves

The record breaking 2019 Northern Hemisphere heat season has challenged communities and resulted in thousands of preventable deaths and hospitalizations across North

# **Monitoring Health Impacts of Extreme** Heat in North America

A summary report and presentations from a December 2018 CEC vorkshop on 'Monitoring Health Impacts from Extreme Heat Events,' held in Phoenix, Arizona, are now available. Access Presentations / Download Summary Report: EN / ES / FR



# Pre-season trial runs of Heatwave Early Actions in Hanoi, Viet Nam

n advance of a heatwave affecting Hanoi from 18-21 July 2019, Red Cross cooling centres and other early actions were tested in an attempt reduce the occurrence of heat-related symptoms in vulnerable populations. Read more >



# As world warms, it's time to get serious about heat stress: lessons from India

Heat-related deaths and illness are on the rise in India. With summertime highs hitting 45° Celsius in rural areas, urgent action s needed to protect vulnerable populations. Read more >

# **Upcoming Heat Health Events**

31st annual conference of the International Society for Environmental Epidemiology (ISEE 2019)

25-28 August 2019 / Ultrecht, Netherlands

14th International Congress of Physiological Anthropology

24-27 September 2019 / Singapore

C40 World Mayors Summit

9-12 October 2019 / Copenhagen

5th International Conference on Countermeasures to Urban Heat

2-4 December 2019 / Hyderabad, India

International Climate Services Conference 6

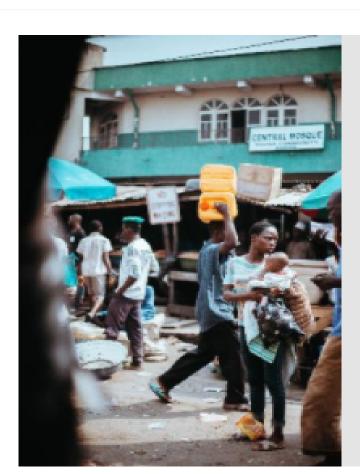
10-14 February 2020 / Pune, India

Symposium on Challenges for Applied Human Biometeorology

2-3 March 2020 / Freiburg, Germany

Are you presenting at any of these events on heat and health? Let us know, and share your presentations and outcomes with the Network!

# http://www.ghhin.org/subscribe



# Do you have insights to improve heat health prevention and preparedness?

Share your ideas, events, new findings, lessons and approaches that can help others around the world. Connect with us to submit content for our Digest, website and social media channels.

Don't forget to join the #HeatHealth conversation on Twitter by following us @heathealth\_info.

Submit your news and events







(🖾) Forward

Get in touch: info@ghhin.org

Visit our website: www.ghhin.org

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# GHHIN Regional Heat Health Profiles



# REGIONAL HEAT HEALTH PROFILE

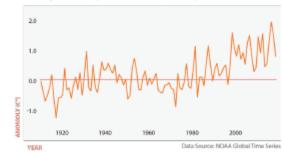
# NORTH AMERICA

# Regional Climate Trends

In 2017, North America had warmer than average annual temperatures across much of the continent. The mean temperature in 2017 for Canada, the United States, and Mexico ranked among the 10 hottest years on record for each

In Canada the annual average temperature in 2017 was 0.7 °C above the 1981-2010 average. In the United States, with the exception of Washington every state in the country experienced warmer than average annual temperatures, with record high temperatures in Arizona, New Mexico, North Carolina, South Carolina, and Georgia, Mexico experienced its hottest year on record, at 1.6 °C above the 1981-2010

## **North American Temperature Anomalies** January - December 1910-2018



Attributable Risk and Heat-Health Relationships

In Canada, occupational-HRI<sup>10</sup> and pregnancies complicated

by placental abruption11 have been significantly associated

with elevated maximum weekly and daily temperatures,

respectively. Of the 1.4 million CHD hospitalizations that

approximately 1056 daily cardiorespiratory deaths were

attributed to elevated ambient temperature between 1987

In North America, a dimate change scenario resulting in a

3.6 °C temperature increase by the end of the century (RCP

6.0) would increase mortality attributable to heat from 0.5%

between 2010-2019 to 1.8% between 2090-2099. A scenario

increase the heat-attributable mortality to 3.6%, 14,15 In 15 US

resulting in a 4.9 °C temperature increase (RCP 8.5) would

occurred in Ontario between 1996 - 2013, 1.20% were

attributed to extreme heat.12 In the US, 0.43% of the

**Heat Health Projections and Scenarios** 

# Impacts of Heat on Health

Elevated ambient temperatures over the last few decades and an increasing frequency and severity of heatwaves have resulted in thousands of cases of heat-related illness (HRI), hospitalizations, and mortality across North America. A significant proportion of hospitalizations for chronic diseases such as coronary heart disease (CHD) have been attributed to heat. The incidence of HRI and HRI--related mortality is projected to increase.

TThe CDC National Environmental Public Health Tracking Network maps state-level public health and environmental data in the US. It includes data for HRI emergency department visits, hospitalizations, and mortality in 20 US states.5 Between 2001-2010, there were approximately 28,000 HRI hospitalizations in 20 states.56 Between 1979 and 2014, more than 9000 Americans died from heat-related causes. Individuals over age 65 and non-Hispanic blacks were disproportionately affected.7A As identified by the syndromic surveillance system in the state of Sonora, Mexico, there were 968 non-fatal cases of HRI and 58 HRI-related deaths between 2016-2018. The majority of cases were male migrant and/or outdoor workers between the ages of 24-44.9

cities, pursuing a 1.5 ℃ climate change mitigation scenario would avoid between 110 - 2720 annual heat-related

July 2019 As reported by NOAA meteorologist and blogger Tom Di Liberto, parts of Alaska experienced record high temperatures in July 2019, particularly in Kenai, Palmer, King Salmon, and Anchorage. Anchorage experienced temperatures
it's warmest week on record, reaching up to 32.2 'C-over 15 °C above its July average.' This has provided ideal smash Alaska's wildfire conditions for the state; as of July 31, 2019, there were 258 active wildfires covering 2,361,732 acres all-time records of land. As a result, Anchorage and Fairbanks have endured high levels of particulate matter, prompting the National Weather Service to issue its first ever Dense Smoke Advisory for Anchorage.

www.ghhin.org 1

# Heat Interventions

Numerous heat-health interventions have already been established in North America at both national (see: Environment & Climate Change Canada; Health Canada; the US National Integrated Heat Health Information System) and subnational levels.917,18 A number of emerging heat-health interventions are currently being tested and evaluated in Canada, the United States, and Mexico, including:

# Heat Health surveillance

A pilot project to enhance syndromic surveillance of HRI in Canada, the United States, and Mexico has been established by the Commission for Environmental Cooperation to develop an operational, real-time syndromic surveillance system for extreme heat events (EHEs) in three selected atrisk communities in Canada, Mexico and the United States and to highlight best practices and lessons learned on developing such a system.19

NOAA is currently testing the National Weather Service HeatRisk forecast system, which assigns heat risk scores at high spatial resolution across the United States, incorporating temperature, climate, and temporal data.30

The CDC's National Institute for Occupational Safety and Health (NIOSH) is evaluating the use of Wet Bulb Global Temperature (WBGT) sensors, which are instruments designed to adjust temperature measurement by detecting and combining on-scene humidity, air movement, and radiant heat data.21

# Decision support tools

Decision calendars provide a framework to support planning by organizing information about user context in decision making, i.e., what needs to be known when, by whom, and to what degree of certainty in order to effectively reduce heat health risk. NIHHIS facilitates calendar interviews, focus groups, and workshops in affiliated pilot cities across the country to support local decision makers.



2 Regional Heat Health Profile: North America

Developing an Integrated Heat Health Information System for Long-Term Resilience to Climate and Weather Extremes in the El Paso-Juarez-Las Cruces

Convened by NIHHIS on July 13, 2016, practitioners. academics, and experts from local and federal agencies met in El Paso. Texas to identify public health needs with regard to extreme heat monitoring and preparedness. The region is home to approximately 2.4 million people, most of whom live in Ciudad Juarez, Chihuahua; El Paso, Texas;

In recent years the region has been subject to extremely high ambient temperatures and increasingly frequent and severe heat waves. Workshop attendees identified key steps and information requirements for developing a regional heat action plan, including the need for vulnerability assessment, more robust medical data, and enhanced interagency coordination for heat early warning systems and forecasting.22

# Syndromic Surveillance and Heat Action in Sonora, Mexico

In 2016 the Commission for Environmental Cooperation launched an HRI syndromic surveillance system in Hermosillo. Mexico. which has since been expanded to include all health authority units in six health jurisdictions in the State of Sonora.

The surveillance system provided health authorities with near real-time data and insight into the epidemiology of HRI in the state, allowing for the deployment of timely interventions and a 51% reduction in HRI-incidence between 2017-2018. During this time a total of 169,330 preventive actions were taken, including the distribution of 27,000 informational items and 40,380 packets of oral rehydration therapy. In particular, interventions targeted vulnerable populations such as outdoor workers.<sup>23</sup>

A new HRI surveillance system was also recently implemented in hospitals, pharmacies, and private healthcare institutions in the State of Chihuahua. Public health officials in the area are alerted to heat-health impacts through a comprehensive electronic medical record database.22

# Future Frontiers of Heat Management and Key Challenge

## Heat health surveillance

The United States and Mexico lack national heat action plans. Further, only 25 US states participate in the national heat health surveillance system. Heat-related morbidity and mortality estimates in North America are further limited by numerous and redundant data sources (workplace incidents; death certificates; the news; syndromic surveillance).

## Forecasting products

There is still much uncertainty in seasonal and sub seasonal meteorological predictions. City-level meteorological data are currently limited; while multiple research groups are downscaling predictions to the city-level, approaches vary significantly.

## Risk assessment

There is a lack of guidance and consensus on heat indices (e.g., wet bulb temperature versus NWS heat index). There is also a limited understanding of how interactions between extreme heat with other environmental hazards (i.e., the urban heat island phenomenon24; wildfires ) adversely impact human health.

# Capacity and funding

Mexico in particular does not have adequate capacity to manage heat-health, given limited resources for both prediction and remediation activities.

# Monitoring, Evaluation,

and Implementation Science The evidence base for the efficacy of heat health interventions is limited; impact assessments and evaluations of heat health interventions are warranted



# NIHHIS tool to prepare and protect vulnerable populations from extreme heat

NIHHIS has partnered with the GIS company Esri to map populations most vulnerable to heat and heat related illness. This online mapping and visualization tool allows decision makers to prepare for extreme heat events and to better understand their options for reducing risk. The tool maps risk according to socioeconomic status. household composition and disability, minority status, language barriers, and issues surrounding housing and transportation. It also displays locations of cooling centers, health care facilities, and areas requiring improved tree

# Heat-health interventions get local and community-engaged in Maricopa County

Arizona's Maricopa County has made preventing HRI a public health priority. The county implements a number of cooling stations and water distribution centers during extreme heat.25

A 2014 study evaluated 53 cooling centers in Maricopa. The majority of cooling stations were housed in community, senior, and religious centers, and offered services to 1500 individuals daily. The cooling stations served vulnerable populations in particular, including homeless individuals.26 While the majority of users in the study learned about the cooling centers by word of mouth,26 Maricopa County's website provides a detailed, interactive map of hydration and cooling stations.25

The Global Heat Health Information Network is an independent, voluntary, and member-driven forum of scientists, practitioners, and policy makers focused on enhancing global and local learning for heat health.

The network is spearheaded by the World Health Organization (WHO) and World Meteorological and Atmospheric Administration (NOAA). It includes health and meteorological practitioners and

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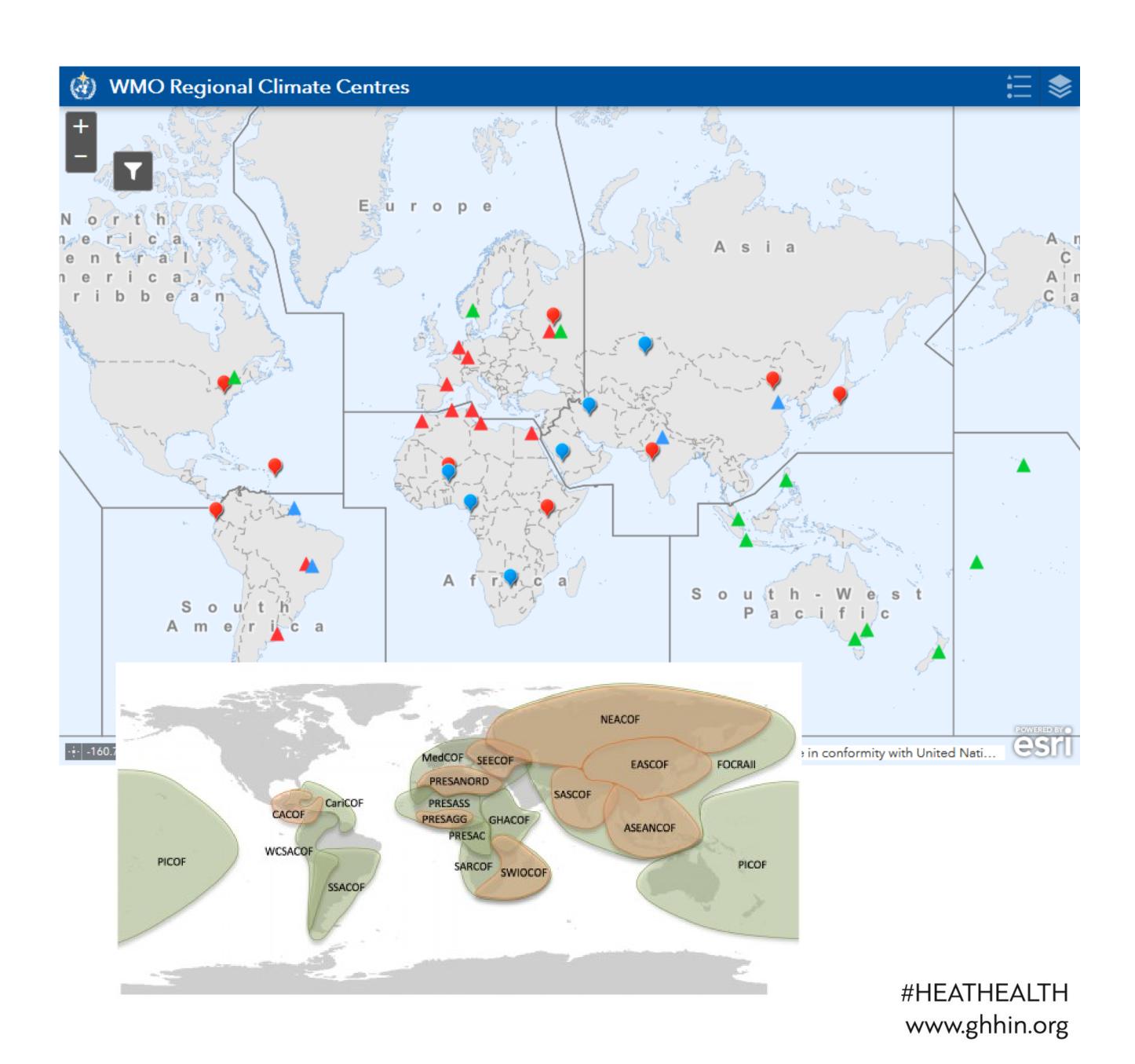


# Regional Climate Information for Heat Health Preparedness

WMO has designated several Regional Climate Centers (RCCs) which provide climate predictions for their regions (temp and precip at a minimum) and provide training and capacity building.

Regional Climate Outlook Forums (RCOFs) take this information a step further by convening stakeholders to interpret and apply this information in many sectors.

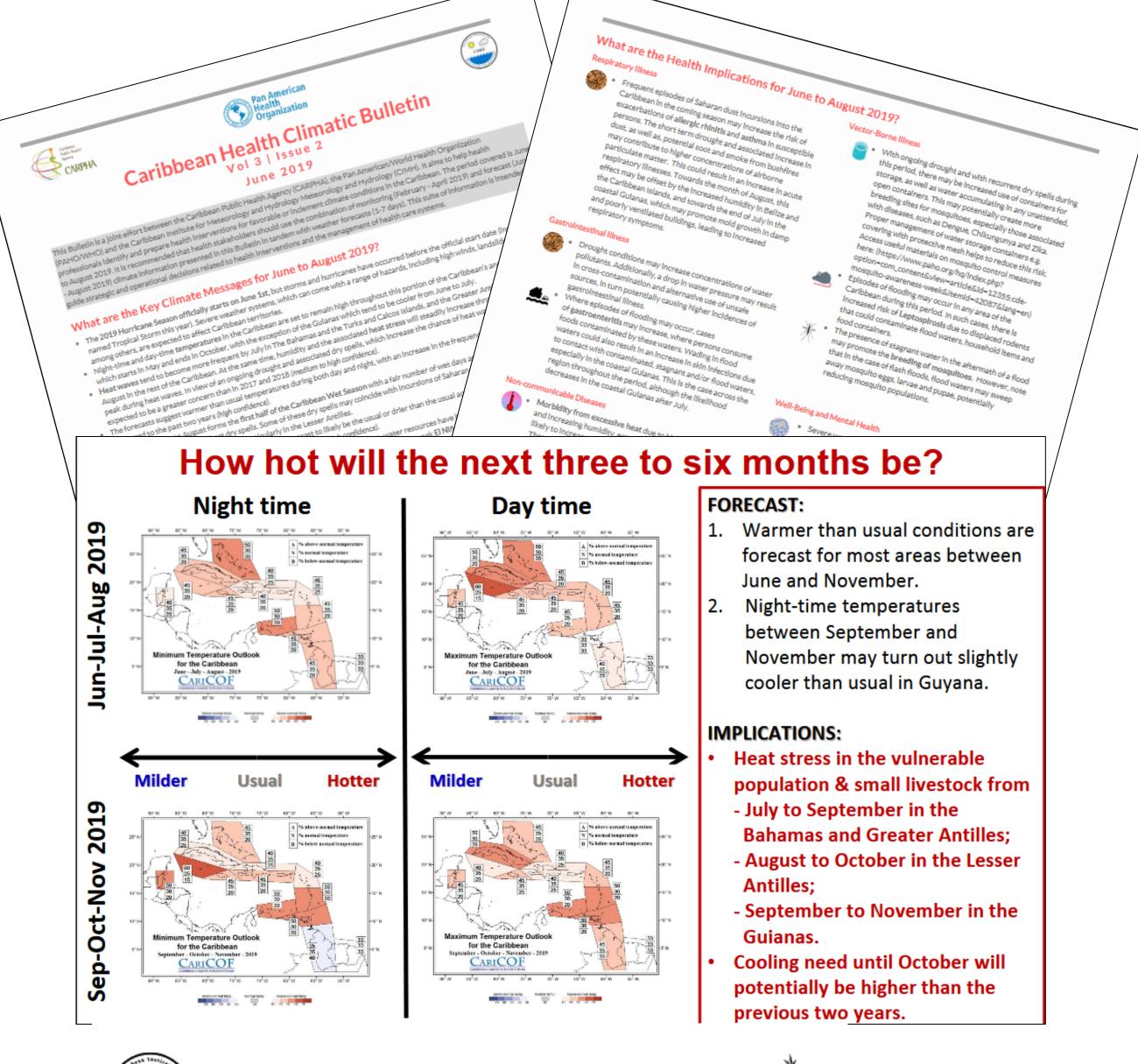




# An example of RCOF information from the Caribbean (CariCOF)

CariCOF produces quarterly health bulletins that interpret climate information for impacts from disease vector population changes to mental health impacts.

CariCOF also produces a separate monthly long-range heat outlook during heat season which puts predictions in a climate context.









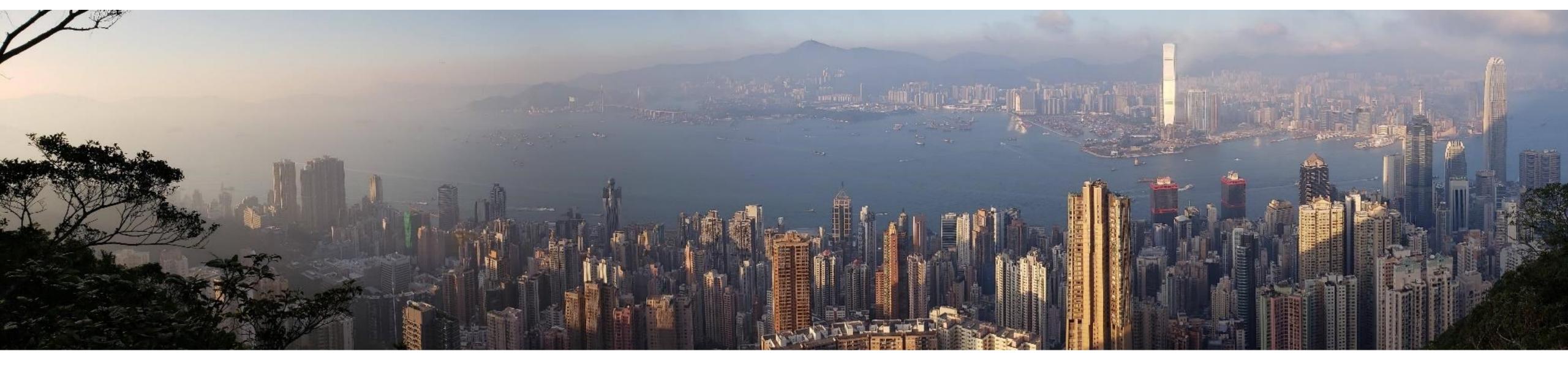
# 1st Global Forum on Heat and Health

December 2018 / Hong Kong, China







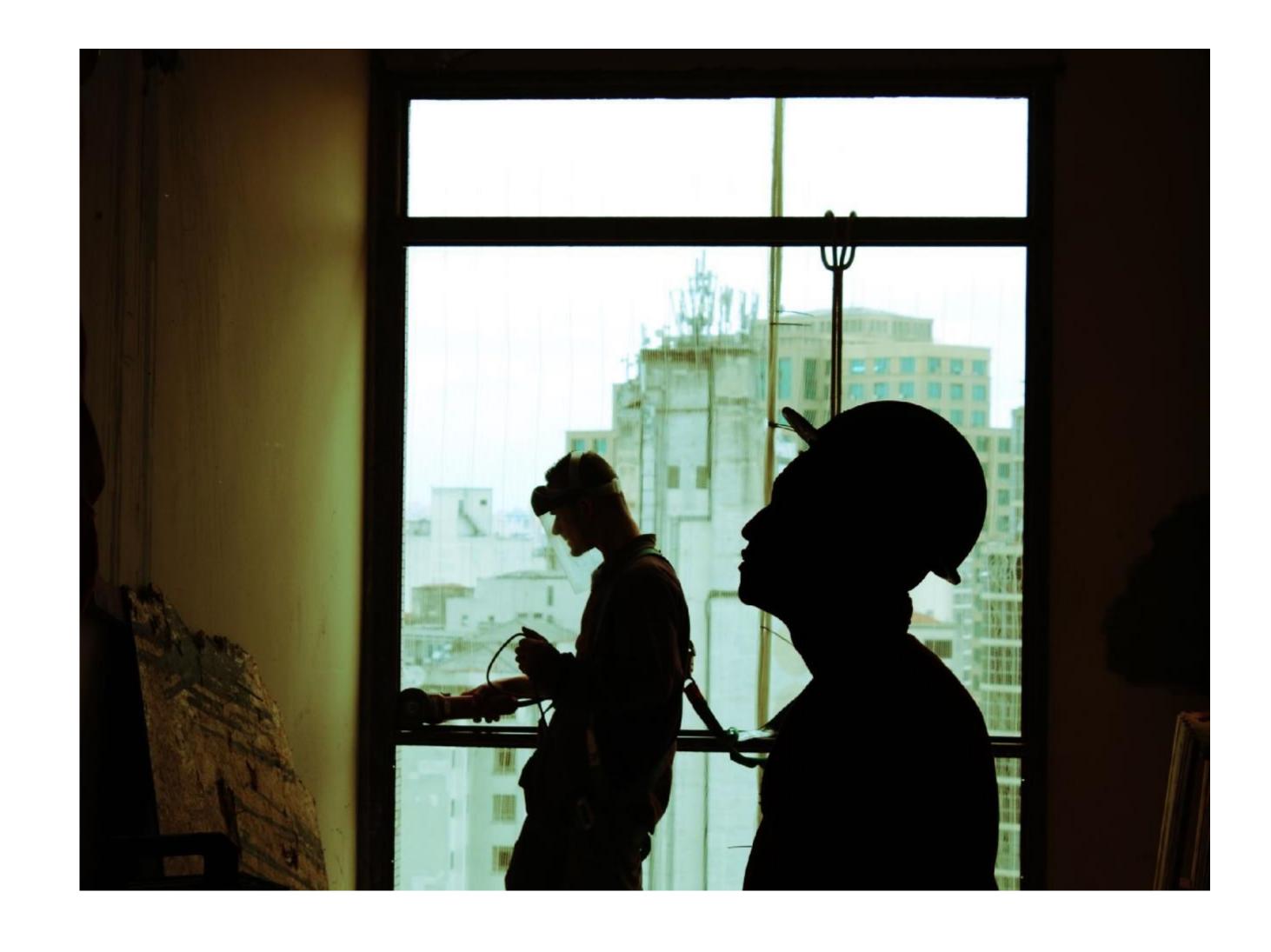




# Occupational heat strain directly affects workers' health

Impacts include elevated risk of dehydration, kidney disease, work accidents, and lost work productivity.

Loss of productivity and income hinders the ability of individuals to live healthy and productive lives.





# Urban environments magnify heat exposure

Dense and vertical constructions, extensive use of heat retaining materials, limited vegetation cover, and heat generation from energy use in cooling and transport all contribute to urban heat island effects.

Urban Heat Islands, and micro-heat islands within cities, increase exposure risk to local inhabitants.





# 2nd Global Forum on Heat and Health

July 2020 / Copenhagen, Denmark

Look for the Save the Date soon.

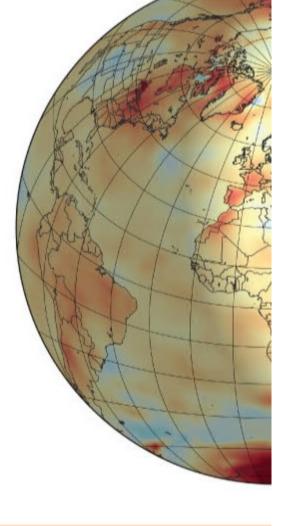
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Improving capacity and knowledge to protect health from extreme heat





A solution-driven community to rapidly scale up knowledge and efforts to manage the complex health risks of a warming world



A go to resource hub to mobilize and improve access to expert resources and learning opportunities



# A knowledge broker to facilitate the synthesis of

# Ways to Participate

- 1. Subscribe!
- 2. Share
- 3. Americas Pilot Projects
- 4. Identify heat plans & resources
- 5. Contribute to National & Regional Heat Profiles



info@ghhin.org

# **COORDINATION TEAM**



Joy Shumake-Guillemot
WHO/WMO Joint Office for
Climate and Health

jshumake-guillemot@wmo.int



Juli Trtanj
NOAA Climate Program Office
juli.trtanj@noaa.gov



Hunter Jones
NOAA Climate Program Office

hunter.jones@noaa.gov