Product of the Research & Information Support Center (RISC)

The following report is based on open-source reporting.

July 13, 2016

Summary

With the onset of summer in the northern hemisphere, various locations popular with tourists and business travelers alike have already started to feel the rising mercury. And, before the summer ends, some regions will see temperatures rise well beyond 100 degrees Fahrenheit, often for protracted periods. Meanwhile, others have relatively short-term extreme heat waves/events, which the U.S. Environmental Protection Agency defines as "periods of summertime weather that are substantially hotter and/or more humid than typical for a given location at that time of year."

Excessive heat regularly causes more deaths than any other weather event in many countries. No matter where one travels, knowing the signs of heat-related illness and what to do can be critical for life-safety. Extreme heat is a real threat to public health that are expected to become worse (longer, more severe, and more frequent) due to climate change.

Heat-related Illness

Extreme heat events cause a wide range of health problems such as cramps, heat exhaustion, and heat stroke. Extreme heat can also make existing medical conditions worse. People in urban areas may be at greater risk from the effects of a prolonged heat wave than are people in rural areas, in part because urban surfaces (such as asphalt) tend to retain heat. Those traveling from more temperate places to locations with more extreme temperatures may also be at risk.

Heat cramps: muscular pains and spasms that usually occur in the legs or abdomen. Heat cramps are often an early sign that the body is having trouble dealing with the heat.
> What to do: move to a cooler place; rest, stretch/massage affected muscle(s); drink water or electrolyte-containing fluids.

Heat exhaustion: heavy sweating; weakness; cold, pale, and clammy skin; fast, weak pulse; nausea or vomiting; fainting.
> What to do: move to a cooler location; lie down and loosen clothing; apply cool, wet cloths to as much of the body as possible; sip water; seek medical attention for persistent vomiting.

Heat stroke: high body temperature (above 103 degrees Fahrenheit/ 39 degrees Celsius); hot, red skin - dry or moist; rapid and strong pulse; possible unconsciousness.
> What to do: CALL for medical help (911, 999, or a local emergency equivalent) immediately and follow the operator's directions - this is a medical emergency; move the person to a cooler place; reduce the person's body temperature with cool cloths or a bath; do NOT give liquids.

Associated Safety Concerns

Extreme heat events, which are often accompanied by dry conditions, can also create conditions that are rife for wildfires. Fires, in turn, can further degrade the air quality due to the smoke that they put off. Scorched trees should be considered unstable and removed to prevent further damage. Certain locations with already bad air quality become demonstrably worse due to the weather or fires—natural or manmade. OSAC constituents can rely on several different sources to help discern when air quality may be an issue. The U.S. Department of State reports on air quality issues at more than a dozen embassies and consulates

abroad via an [online research tool](). Additionally, the U.S. Mission in China helps travelers by communicating air quality reports via [Twitter](). And, [OSAC has reported]() on the effects of fires on air quality in Southeast Asia, as well as the link between rising temperatures, drought, and security in southern Africa.

Year-to-Date Global Temperature
for 2016 and the other seven warmest years on record
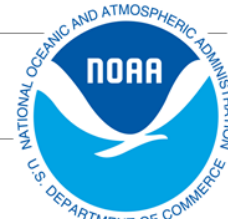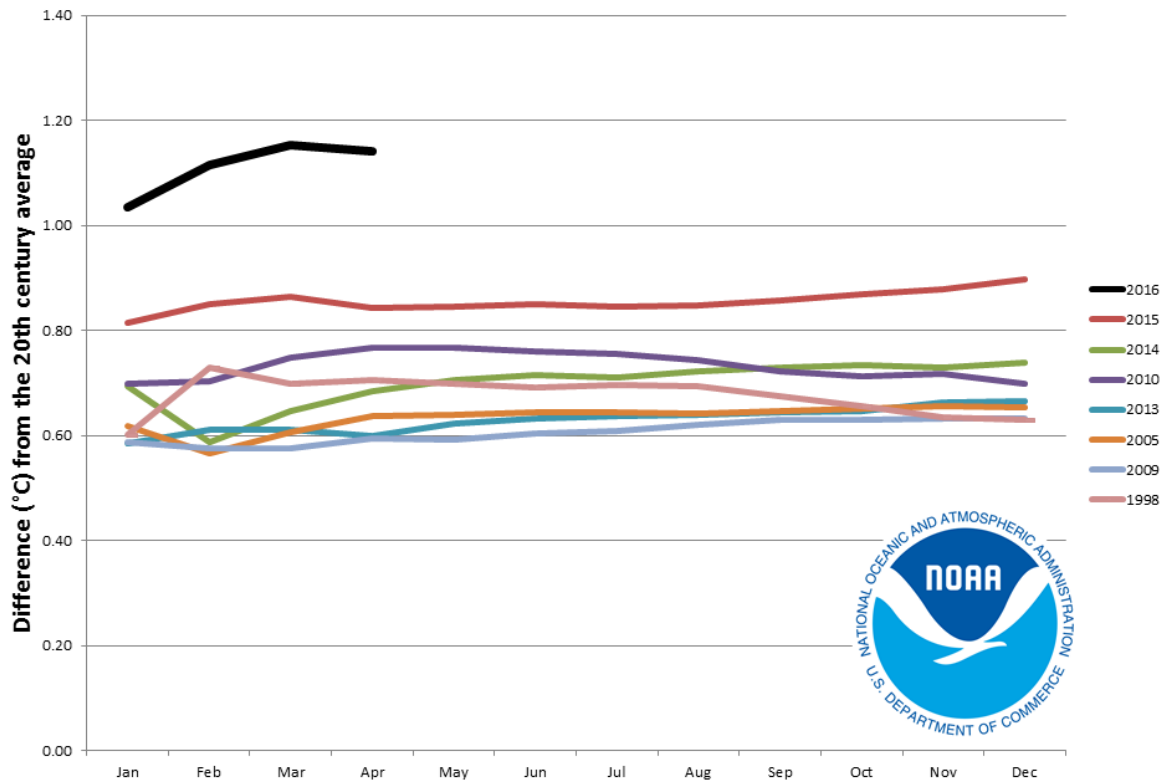
A Global Check

June 2016 was the hottest June on file and the ninth consecutive month to break global temperature records, [according]() to NASA's GISS. Experts believe with near certainty that 2016 will break all previous heat records.

- In late May, India [recorded]() its highest-ever temperature, in Phalodi, Rajasthan, of 51C (123.8F), with over two consecutive days over 50C. The excessive heat has resulted in a red-level alert in Rajasthan, Madhya Pradesh, and Gujarat. Nearly 400 people nationwide have died from this heat wave; over 2,500 people died in 2015's hot summer, which led the National Disaster Management Authority to draft heat-awareness action plans.
- The Department of Environmental Protection of Taiwan, which has had the hottest June in 120 years, announced an interdepartmental standard operating [procedure]() when temperatures remain above 37C (98.6F) for three days.

These high temperatures are partly attributable to the cyclical El Nino phenomenon that experts believe will abate before the year's end; then the La Nina cycle, which should cool global temperatures, begins.

Guidance

Many of the negative health effects attributable to extreme heat events are preventable and can be incorporated into an extreme-heat program that is typically cost-effective and feasible even in low resource settings. Some of the core components might include:

- A written, publicly approved program plan;
- Consistent messaging, information, and instructions via public broadcast, websites, email, and social media;
- Formal check-in and buddy systems;
- In-person assessments for vulnerable persons and groups;
- Strategies and recommendations for staying cool at work;
- Designated public cooling shelters; and
- Cancellation policies for outdoor activities/events and travel.

The CDC offers a dedicated site, "Extreme Heat and Your Health," that outlines three key components to staying safe in hot climates:

1. Stay cool,
2. Stay hydrated, and
3. Stay informed.

There are additional resources for people aged 65 and older, people with chronic medical conditions, outdoor workers, and athletes. There is also an online training for those with responsibility for outdoor athletic training programs.

The American Red Cross also offers 10 tips for staying safe in extreme heat. During extreme heat events, safety precautions should consider the possibility of power outages that eliminate access to air conditioning or electrical fans. Emergency disaster kits should have sufficient potable water and low salt food supplies and could include manual or battery-powered, personal fans.

For Further Information

For additional information on global health, please contact OSAC's Global Health and Pandemic Analyst.