Killer Heat in the United States

Excerpts from a report by Florida Veterans for Common Sense.

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There are many threats from climate change. Let's examine what are we facing from extreme heat alone.

The Union of Concerned Scientists issued a detailed report with interactive computer graphics that can help one "get the picture."

> The United States is facing a potentially staggering expansion of dangerous heat over the coming decades. This analysis shows the rapid, widespread increases in extreme heat that are projected to occur across the country due to climate change, including conditions so extreme that a heat index cannot be measured. The analysis also finds that the intensity of the coming heat depends heavily on how quickly we act now to reduce heat-trapping emissions. The results highlight a stark choice: We can continue on our current path, where we fail to reduce emissions and extreme heat soars. Or we can take bold action *now* to dramatically reduce emissions and prevent the worst from becoming reality. (Dahl 2019).

This kind of extreme heat is more than uncomfortable, inconvenient and expensive, it is a major health risk. "When extreme heat conditions prevent our bodies from adequately cooling, our core temperatures rise, especially during periods of prolonged exposure. Heat stress and then heat exhaustion follow as body temperature rises upward. Once the body's core temperature reaches 104°F or higher, heat stroke—the most severe heat-related illness—can result. The implications of this analysis are profound: in many places, extreme heat will lead to an increase in deaths or illnesses, disrupt long-standing ways of life, force people to stay indoors to keep cool, and perhaps even drive large numbers of people away from areas that become too unpleasant or impractical to live." (Munoz, 2019).

Writing in the Sarasota Herald Tribune, Carlos Munoz gives us a local perspective. These climate impacts could dramatically alter life in Florida — and affect nearly 120 million Americans, in our lifetime. Today, only one place in the country experiences this kind of heat: the Sonoran Desert in Arizona. "We would be seeing people — climate refugees — fleeing Florida," said Mark Paul, a professor of economics at New College of Florida. "A lot of barrier islands will not be inhabitable within our lifetime unless we take drastic measures to reverse course." The Sarasota-Bradenton area could be in for more than two months a year with a heat index over 100 degrees by mid-century if no action is taken.

By using the interactive feature of the UCS report, we can gain insights into the consequences of our choices. This interactive mapping tool shows the rapid, widespread increases in extreme heat projected to occur across the United States due to climate change. Information is presented by county and includes all 3,109 counties in the contiguous US. For this national analysis, extreme heat is measured according to the heat index, the combination of temperature and humidity that together create a "feels like" temperature.

Four different heat index thresholds are featured, each of which brings increasingly dangerous health risks: above 90°F, above 100°F, above 105°F, and "off the charts." (Off-the-charts days are so extreme they exceed the upper limits of the National Weather Service heat index scale, which starts topping out at or above a heat index of 127°F, depending on the combination of temperature and humidity.)

Three different time frames are featured—historical, midcentury, and late century—and three different scenarios of climate action are considered: no action, slow action and rapid action.

To access the interactive map, go to https://ucsusa.maps.arcgis.com/apps/MapSeries/index.html?appid=e4e9082a1ec343c794d27f3e12dd006d.

Let's use Port Charlotte Florida, where my family lives, as an example. A few clicks on the interactive map tool gives us the projections.

Table 1 - Killer Heat Consequences of Choice Charlotte County Florida

Historically, Charlotte County has experienced an average of **3 days per year with a heat index above 105°F**
Consequences of no action. If we fail to reduce heat-trapping emissions, • **by midcentury** Charlotte County would experience an **average of 78 days per year with a heat index above 105°F. This includes 1 day with an off-the-charts heat index.** • **by late century** Charlotte County would experience an **average of 130 days per year with a heat index above 105°F. This includes 17 days with an off-the-charts heat index**
Consequences of slow action: • If we take slow action on climate change and heat-trapping emissions start to decline midcentury, **by late century Charlotte County would experience an average of 68 days per year with a heat index above 105°F.**
Consequences of Rapid action: • If we take bold and rapid action NOW to reduce heat-trapping emissions, we can limit the increase in extreme heat in Charlotte County to an **average of 50 days per year with a heat index above 105°F.**

What we see for Charlotte County is representative of the Sun Belt. As spelled out in the UCS report, were we to take no action to reduce heat-trapping emissions, the **Sunbelt,** stretching from the Carolinas across the South to Southern California, would see the most dramatic and life-threatening jump in the frequency of high heat index days of all regions of the United States. Broad swaths of the Sunbelt are projected to experience an average of 100 or more days per year—the equivalent of more than three months—with a heat index above 100°F, whereas parts of southern Florida would experience 170 such days in an average year.

It is important to lean that steep, rapid emissions reductions (that result in future global warming of 2°C or less) would result in roughly half as many days with a heat index above 105°F nationwide. **Rapid action to reduce global emissions could make a significant difference in exposure to extreme heat by midcentury**.

We are in for increasingly hot weather, no matter what we do. Our choice is do we want to accept the status quo (no action) and really be fried by mid and late century? Or do we choose to be half-cooked

by taking slow action? We do have another option- rapid and bold action – that will minimize the damage to half as many days above 105^{O}F.

Toward Solutions

Climate change is scary, but we don't aim to paralyze you with fear. The prospects for practical solutions are good. We have the knowledge and most of the technology to meet the challenge and succeed. Plus, the economic benefits of energy efficiency, transitioning to zero emission sources of energy, and improving the use of our land will help ensure that our future is prosperous and healthy. But, as the Union of Concerned Scientist tell us ***we must act now, and forcefully.***

Need some ideas for what you can and should be doing? There is another report that presents a practical and concrete action plan for mitigating climate change in our own realm, that is, in our family's activities, and at our businesses. This report also offers advice on how to influence others, and what/how we need government to do. This guide is called *Urgency and Action: Drawdown to Reverse Global Warming*, published by Florida Veterans for Common Sense. Check it out at https://tinyurl.com/Urgency-In-Action

References

Dahl, Christina, et al. 2019. *Killer Heat in the United States: Climate Choices and the Future of Dangerously Hot Days.* Union of Concerned Scientists. July *www.ucsusa.org*/killer-heat. Use this link for the interactive map: https://ucsusa.maps.arcgis.com/apps/MapSeries/index.html?appid=e4e9082a1ec343c794d27f3e12dd006d

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