

# US Military on the Front Lines of Extreme Heat

Thousands of US military servicemembers suffer from heat-related illnesses (HRIs)—such as heat exhaustion and heat stroke—every year. Analysis by the Union of Concerned Scientists (UCS) shows that over the next 20 to 40 years, as global temperatures rise in response to heat-trapping emissions, servicemembers at US military installations will experience more frequent and more intense episodes of extreme heat that could drive rates of HRI even higher (Dahl 2019).

In 2018 alone there were nearly 2,800 cases of HRI in the military—most of them occurring right here at home on US installations (AFHSB 2019). Roughly 40 percent of military HRI cases over the last five years have occurred on just five populous US military bases, all located in the Southeast region: Fort Benning, Georgia; Fort Campbell, Kentucky; Fort Polk, Louisiana; Fort Bragg, North Carolina; and Marine Corps Base Camp Lejeune/Cherry Point, North Carolina.

The choices we make today will determine how often we experience extreme heat in the future. Contributing to global efforts to make swift and deep reductions of carbon emissions by ramping down fossil fuel use, accelerating the deployment of renewable energy and energy storage, increasing energy efficiency, and incentivizing innovative low-carbon solutions here in the United States will help limit future warming and the frequency of dangerously hot days for US troops.

## The Future of Extreme Heat across US Military Bases

For this analysis, “extreme heat” is defined according to the heat index, the combination of temperature and humidity that creates the “feels-like” temperature. We used high-resolution climate models to project how many additional days with a heat index above 100°F each large military base (with a population of 1,000 or more) in the United States would experience in the future under different carbon emissions scenarios.

If we fail to reduce global heat-trapping emissions, nearly every populous military installation in the United States—regardless of its branch—would experience a major increase in the frequency of dangerously hot days within the next 20 to 40 years. On average, installations would face an additional month per year of extreme heat by midcentury, but at many installations the increase would be two to three and one-half months. Including these additional days, some bases would experience the equivalent of nearly four months per year with a heat index above 100°F.

The consequences of increasingly frequent extreme heat could be particularly severe at basic training facilities. Every member of the Armed Services goes through basic training, and recruits—the newest members of the military—experience HRI at six times the rate of other enlisted personnel. UCS data show that the frequency of days with potentially lethal heat at basic training facilities would quadruple, on average, by midcentury with no action to reduce emissions.

Installations in Florida are projected to be particularly affected: of the five bases with the largest increases in the frequency of days with a heat index above 100°F between now and midcentury, four are in Florida. The consequences for a state that is home to more than 60,000 active duty servicemembers, 30,000 civilians, and 1.5 million combat veterans could be profound.

## Recommendations to Limit HRI in the Military

To help protect military servicemembers from the growing risks of HRI, Congress should consider the following recommendations:

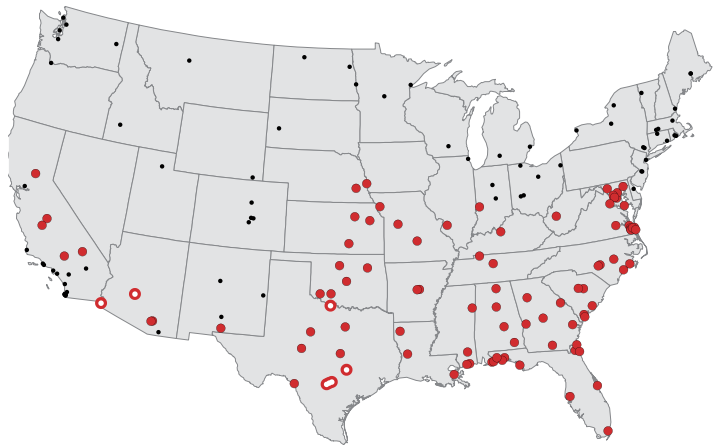
1. Permanently authorize program funding for the Fort Benning Heat Center to ensure consistency and productivity of the center’s efforts. This first-of-its-kind center is doing critical research into prevention and care for HRI and developing best practices and protocols for the field.



*A marine drinks water following a combat conditioning exercise in Louisiana. Without action to curb heat-trapping emissions, military personnel will be subject to the increasing risk of heat-related illnesses such as heat exhaustion and heat stroke.*

2. Direct the Office of the Secretary of Defense to establish an extreme heat expert working group that includes expertise from each of the branch services as well as other federal agencies to develop specific actionable recommendations for HRI detection and prevention in the military and provide a report to Congress.
3. Submit a formal request to the Government Accountability Office to study how effective the military is at implementing the heat guidance and provide recommendations on policy changes.
4. Direct an increase in dedicated resources to the US Army Medical Research and Development Command to carry out medical research on (1) HRI education, prevention, and detection; (2) medical management; and (3) innovation in clothing and equipment that can cool personnel during strenuous activities.
5. Direct the Department of Defense (DOD) to educate and train military personnel, especially those in command, to (1) be more fully aware of the dangers of HRI; (2) recognize the importance of acclimatization and safeguards around work/rest cycles, which should be diligently enforced to prevent overexertion on dangerously hot days; and (3) recognize the need for accurate collection of on-site heat data. The military may also need to consider adjusting the times of day or times of year when it is safe to conduct training activities requiring serious exertion.
6. Direct and provide resources to the DOD to increase HRI scientific and educational resources by building a public-facing online resource center that (1) develops and maintains an extreme heat modeling tool based on future climate change scenarios, and (2) provides DOD guidance on HRI prevention directed to individual soldiers, medics, and technicians in order to spread existing knowledge.
7. Support and expand tax credits for renewable energy and storage and support and expand DOD efforts to incorporate more renewable energy and storage in its operations. Enact robust policies that will enable the country to transition away from fossil fuels and better respond to unavoidable impacts of climate change.

## Military Installations Experiencing Heat Index >100°F



- More than 30 Days per Year, by Midcentury
- More than 30 Days per Year, Historically
- Fewer than 30 Days per Year, by Midcentury

*Historically, only nine major military installations in the United States have experienced 30 or more days per year with a heat index above 100°F. By midcentury, with no action to reduce emissions, 100 installations would experience such conditions. Of the 10 bases with the largest increases in the number of days per year with a heat index above 100°F, five are in Florida, two are in Mississippi, two are in Texas, and one is in Louisiana.*

By swiftly and aggressively reducing our carbon emissions and contributing to global efforts to limit climate change, and by strengthening the military's protocols for preventing and addressing HRI, we can ensure that our troops are positioned to meet this threat rather than fall victim to it.

### REFERENCES

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- Dahl, Kristy. 2019. "US Military on the Front Lines of Extreme Heat." *The Equation* (blog). November 10, 2019. <https://blog.ucsusa.org/kristy-dahl/military-extreme-heat>.