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Main Image:

Arctic heat wave ^[2]

Generally, Alaskans aren't confronted with suffocating heat waves like the one much of the United States is currently dealing with. But that doesn't mean heat in the nation's westernmost and northernmost outpost isn't ever an issue.

A recent wave of dangerously high temperatures -- meteorologists call it a "**heat dome**" ^[3] -- has descended upon 17 states in the Lower 48. Temperatures have been recorded as high as 129 degrees Fahrenheit, stressing the nation's power grid, causing residents to move into tents near ice rinks, spend days indoors or running through city fire hydrant-fountains.

Then again, all things are relative. A cold snap in some states could actually be considered a heat wave here. Temperatures in the 90s would be relieving for the Midwest but could cause heat grief in the Arctic.

The occasional day that may seem unusually warm in a city like Anchorage may give way to complaints from uncomfortably sweaty citizens, but chances are they have good ways to find relief like staying indoors or seeing a movie at an air-conditioned theater. And the city is far from seeing the double digit, sustained spikes across the Midwest, South and Eastern United States.

But in the Far North, extremes don't have to be measured in large temperature leaps. A steady increase of a few degrees year after year is enough to cause big changes.

When you live in a much smaller community even farther north that has for generations survived by learning how to insulate itself from the cold, rising temperatures -- even incremental -- can be more sinister than mere inconvenience. They can put people's lives at risk.

"I think that people are really starting to feel the heat. It's a new thing and the theory is that we should be thinking of ways to help prevent people from running into heat-related health issues," said Michael Brubaker, director of the Center for Climate & Health at the Alaska Native Tribal Health Consortium.

Brubaker and his team have co-authored several reports documenting the effects of climate change on Alaska villages. This summer, they released their first such **study on the inland river community of Noatak**. ^[4]

During a research visit to the village, Brubaker was surprised one morning to find the health clinic's lobby packed with people. The villagers weren't there because they were sick. The clinic was the only place in town with fans, attracting people in search of a way to beat the heat.

"Everybody was just trying to stay cool," Brubaker said in a recent interview. "Going to Noatak I was surprised how hot it gets in the summer there, being so far north. The first day that I came

out it was in the 80s."

Average temperatures in Noatak "range from 5°F to -15°F in winter to between 45°F and 60°F in mid-summer" while "temperature extremes have been recorded from below -50°F to over 90°F," according to the Noatak climate change report.

The data also show that over the last 50 years, temperatures have steadily increased in the village in every month of the year.

In recent years, the warmer days have led to public health concerns about an increased risk for heat stress, a condition for which the Noatak clinic has recently seen mild cases. In one instance, a boat driver overheated himself as he navigated the river from inside a tightly fixed canopy. Friends on the boat with him recognized he was in trouble, called search and rescue, and the man ended up staying overnight at the clinic, Brubaker said.

The boat canopies -- tight to keep in heat and bugs out -- are one example of how aspects of daily life in the Arctic may need to shift to ensure that what has in the past been sensible doesn't become a liability. Snug canopies like the one on the boat of the heat-affected driver aren't designed for ventilation, Brubaker said.

When faced with warm days, life on land in the small village also has perils.

"When the temperature gets into the 80s the clinic puts out an alert on the VHF for elders to stay inside and drink lots of water. We don't want them to get heat stroke," Tanya Kirk, a village health worker, told Brubaker while he was there.

Yet even this straightforward approach may have constraints. Like the boat canopies, many homes are also designed for insulation and heat containment, not air flow. Opening windows can help, but it allows another complication -- dust -- to blow in.

Dirt roads and a gravel runway make the community susceptible to poor air quality on dry days. Making matters worse? The fact that Noatak has for more than a decade been without barge service, meaning fuel and other bulk deliveries must be flown in, expensively, on cargo planes which leave the village in a cloud of dust after each take off.

Noatak is not alone in facing these emerging threats. Other communities in Alaska face the same issues, and temperature variances, whether caused by climate change or other phenomena, are likely to continue to pose new problems for Arctic residents, Brubaker said.

"We've always leaned toward constructing things that are warm and durable," he said. "But do we need to now be thinking about building homes that are cool, also?"

In posing these questions, Alaska is beginning down a path that other countries have tread, where the lesson from other nations is that left ill-prepared, people can be expected to die during extreme, prolonged heat waves.

"Extremely hot days," where temperatures top 86 degrees Fahrenheit, are becoming more prevalent in communities in Canada and Russia, Brubaker said. Look no further than the "Great Russian Heat Wave of 2010" which is estimated to have caused 55,000 deaths, to the 2003 European heat wave that killed an estimated 35,000 to 50,000, or to efforts underway in Sweden to cope with a projected increase in heat-related deaths, for reminders that hot weather can affect arctic regions, he said.

"Heat stroke related to climate change is a big deal in a lot of places, but it hasn't been talked

about much in the Arctic," Brubaker said.

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