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Headline: Climate change keeps making wildfires and smoke worse. Scientists call it the 'new abnormal'

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A jogger runs along McCovey Cove outside Oracle Park in San Francisco, under darkened skies from wildfire smoke on Sept. 9, 2020. AP FILE PHOTO

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It was a smell that invoked a memory. Both for Emily Kuchlbauer in North Carolina and Ryan Bomba in Chicago. It was smoke from wildfires, the odor of an increasingly hot and occasionally on-fire world.

Kuchlbauer had flashbacks to the surprise of soot coating her car three years ago when she was a recent college graduate in San Diego. Bomba had deja vu from San Francisco, where the air was so thick with smoke people had to mask up. They figured they left wildfire worries behind in California, but a Canada that's burning from sea to warming sea brought one of the more visceral effects of climate change home to places that once seemed immune.

"It's been very apocalyptic feeling, because in California the dialogue is like, 'Oh, it's normal. This is just what happens on the West Coast,' but it's very much not normal here," Kuchlbauer said.

As Earth's climate continues to change from heat-trapping gases spewed into the air, ever fewer people are out of reach from the billowing and deadly fingers of wildfire smoke, scientists say. Already wildfires are consuming three times more of the United States and Canada each year than in the 1980s and studies predict fire and smoke to worsen.

While many people exposed to bad air may be asking themselves if this is a "new normal," several scientists told The Associated Press they specifically reject any such idea because the phrase makes it sound like the world has changed to a new and steady pattern of extreme events.

"Is this a new normal? No, it's a new abnormal," University of Pennsylvania climate scientist Michael Mann said. "It continues to get worse. If we continue to warm the planet, we don't settle into some new state. It's an ever-moving baseline of worse and worse."

It's so bad that perhaps the term "wildfire" also needs to be rethought, suggested Woodwell Climate Research Center senior scientist Jennifer Francis.

"We can't really call them wildfires anymore," Francis said. "To some extent they're just not, they're not wild. They're not natural anymore. We are just making them more likely. We're making them more intense."

Several scientists told the AP that the problem of smoke and wildfires will progressively worsen until the world significantly reduces greenhouse gas emissions, which has not happened despite years of international negotiations and lofty goals.

Fires in North America are generally getting worse, burning more land. Even before July, traditionally the busiest fire month for the country, Canada has set a record for most area burned with 31,432 square miles (81,409 square kilometers), which is nearly 15% higher than the old record.

"A year like this could happen with or without climate change, but warming temperatures just made it a lot more probable," said A. Park Williams, a UCLA bioclimatologist who studies fire and water. "We're seeing, especially across the West, big increases in smoke exposure and reduction in air quality that are attributable to increase in fire activity."

Numerous studies have linked climate change to increases in North American fires because global warming is increasing extreme weather, especially drought and mostly in the West.

As the atmosphere dries, it sucks moisture out of plants, creating more fuel that burns easier, faster and with greater intensity. Then you add more lightning strikes from more storms, some of which are dry lightning strikes, said Canadian fire scientist Mike Flannigan at Thompson Rivers University in British Columbia. Fire seasons are getting longer, starting earlier and lasting later because of warmer weather, he said.

"We have to learn to live with fire and smoke, that's the new reality," Flannigan said.

Ronak Bhatia, who moved from California to Illinois for college in 2018 and now lives in Chicago, said at first it seemed like a joke: wildfire smoke following him and his friends from the West Coast. But if it continues, it will no longer be as funny.

"It makes you think about climate change and also how it essentially could affect, you know, anywhere," Bhatia said. "It's not just the California problem or Australia problem. It's kind of an everywhere problem."

Wildfires in the U.S. on average now burn about 12,000 square miles (31,000 square kilometers) yearly, about the size of Maryland. From 1983 to 1987, when the National Interagency Fire Center started keeping statistics, only about 3,300 square miles (8,546 square kilometers) burned annually.

During the past five years, including a record low 2020, Canada has averaged 12,279 square miles (31,803 square kilometers) burned, which is three and a half times larger than the 1983 to 1987 average.

The type of fires seen this year in western Canada are in amounts scientists and computer models predicted for the 2030s and 2040s. And eastern Canada, where it rains more often, wasn't supposed to see occasional fire years like this until the mid 21st century, Flannigan said.

If the Canadian east is burning, that means eventually, and probably sooner than researchers thought, eastern U.S. states will also, Flannigan said. He and Williams pointed to devastating fires in Gatlinburg, Tennessee, that killed 14 people in 2016 during a brief drought in the East.

America burned much more in the past, but that's because people didn't try to stop fires and they were less of a threat. The West used to have larger and regular fires until the mid-19th century, with more land settlement and then the U.S. government trying to douse every fire after the great 1910 Yellowstone fire, Williams said.

Since about the 1950s, America pretty much got wildfires down to a minimum, but that hasn't been the case since about 2000.

"We thought we had it under control, but we don't," Williams said. "The climate changed so much that we lost control of it."

The warmer the Arctic gets and the more snow and ice melt there — the Arctic is warming three times faster than the rest of Earth — the differences in the summer between Arctic and mid-latitudes get smaller. That allows the jet stream of air high above the ground to meander and get stuck, prolonging bouts of bad weather, Mann and Francis said. Other scientists say they are waiting for more evidence on the impact of bouts of stuck weather.

A new study published on June 23 links a stuck weather pattern to reduced North American snow cover in the spring.

For people exposed to nasty air from wildfire smoke, increasing threats to health are part of the new reality.

Wildfires expose about 44 million people per year worldwide to unhealthy air, causing about 677,000 deaths annually with almost 39% of them children, according to a 2021 study out of the United Kingdom.

One study that looked at a dozen years of wildfire smoke exposure in Washington state showed a 1% all-ages increase in the odds of non-traumatic death the same day as the smoke hit the area and 2% for the day after. Risk of respiratory deaths jumped 14% and even more, 35%, for adults ages 45 to 64.

Based on peer-reviewed studies, the Health Effects Institute estimated that smoke's chief pollutant caused 4 million deaths worldwide and nearly 48,000 deaths in the U.S. in 2019.

The tiny particles making up a main pollutant of wildfire smoke, called PM2.5, are just the right size to embed deep in the lungs and absorb into the blood. But while their size has garnered attention, their composition also matters, said Kris Ebi, a University of Washington climate and health scientist.

"There is emerging evidence that the toxicity of wildfire smoke PM2.5 is more toxic than what comes out of tailpipes," Ebi said.

A cascade of health effects may become a growing problem in the wake of wildfires, including downwind from the source, said Ed Avol, professor emeritus at the Keck School of Medicine at University of Southern California.

Beyond irritated eyes and scratchy throats, breathing in wildfire smoke also can create long-term issues all over the body. Avol said those include respiratory effects including asthma and COPD, as well as impacts on heart, brain and kidney function.

"In the longer term, climate change and unfortunately wildfire smoke is not going away because we really haven't done that much quick enough to make a difference," Avol said, adding that while people can take steps like masking up or using air filters to try to protect themselves, we are ultimately "behind the curve here in terms of responding to it."

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