

At least two dead as California battered by high winds and heavy rain and snow

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At least two people have died in California this week as a result of the most recent onslaught of massive storms that have rampaged across the state. The first death was a 19-year-old young woman in Fairfield, a city north of San Francisco, who according to early police reports hydroplaned while driving on a partially flooded road and crashed into a utility pole.

The second death was a two-year-old in Sonoma County who died after a redwood tree fell onto the child's home. "My son was just sitting there, playing," Aisha Tocchini, the child's mother, told the *San Francisco Chronicle*. The rainfall from the storms in the county, also north of the Bay Area, caused the soil to oversaturate and loosen, which in turn allowed the high winds to ultimately uproot decades-old trees.

As of Friday afternoon, more than 64,000 people remain without power as a result of massive flooding across the state after hundreds of thousands went without during earlier parts of the storm. Among those are 51,000 customers of Pacific Gas and Electric (PG&E), the company infamous for causing numerous forest fires, including the 2018 Camp Fire which killed 84 people as a result of faulty power lines.

The ongoing storms are among the wettest the Northern California region has ever seen. According to the National Weather Service (NWS), San Francisco received 10.33 inches of rain during the ten days between December 26 and January 4, the most since 1871. The majority of the rain, 5.46 inches, fell on New Year's Eve.

In addition to the record rainfalls, several feet of snow have been dumped on the Sierra Nevada above 6,000 feet. As a result, the NWS issued a "high avalanche danger" through Friday morning from Ebbetts Pass to Yuba Pass, a stretch of about 120 miles that includes Lake Tahoe. It has also issued a

Backcountry Avalanche Watch in the same region through Sunday morning.

The storms facing California, moreover, are not over. While rains and snows abated Thursday evening, they are predicted to pick up again across northern California and southwest Oregon late Friday. The NWS predicts three to six inches of rainfall across the region, with local totals that may be even higher, threatening further flash flooding. More storms of similar magnitude are expected to make landfall next week.

The immediate source of the storms over the past several days are a weather phenomenon known as atmospheric rivers. Also known as tropical plumes, they are narrow bands of concentrated moisture often generated by cyclones that form over the oceans. They then travel hundreds or even thousands of miles before hitting land and dropping the contained moisture and inducing intense rainfall.

The current atmospheric rivers flowing over California also induced what is known as a "bomb cyclone," during which atmospheric pressure falls at least 24 millibars in 24 hours. The sharp drop in pressure causes torrential rainfall in a very concentrated area, the result of which has been the storms all along the West Coast.

The moisture carried by the current set of atmospheric rivers is also expected to reach further east than just the California coast. Snowfalls of up to 18 inches in places as far inland as Utah are possible, according to NWS forecasts, before spreading across the central part of the Rocky Mountains.

Atmospheric rivers have been studied for decades as data from early weather satellites clearly revealed the narrow bands of traveling moisture. They are typically thousands of miles long, hundreds of miles wide and can deliver more water than Earth's largest river, the

Amazon River.

They are also increasing in frequency. An article published last August in the journal *Nature* showed that atmospheric rivers are responsible for most of the damage caused by flooding in the western United States, and are expected to become more intense as human-caused climate change continues unabated.

In particular, rising sea temperatures are causing more evaporation from the oceans, causing atmospheric rivers that are more frequent and more intense. While there is a side-effect of reducing the number of light and moderate storms, the expected average damages are projected to jump from \$1 billion each year to \$1.9 billion a year by the 2050s and up to \$3.6 billion a year by the end of the century as rainfalls and floods set new destructive records. The total is ultimately hundreds of billions of dollars in damages just from flooding, not to mention the massive loss of human life.

The study also noted that these projections are based on historical data that did not include the potential for 1-in-100-year or 1-in-1000-year floods. A series of such storms, which are happening with increasing frequency across the US (such as Hurricanes Katrina, Sandy and Harvey), could cause up to \$860 billion in damages in California alone.

The increasing frequency of these “extreme weather” events is a direct product of climate change. The extra heat trapped in Earth’s atmosphere by increasing amounts of greenhouse gases generated through the anarchy of capitalist production is ultimately transformed into energy that creates more powerful cyclones and hurricanes, as well as making more dangerous conditions for heatwaves, polar vortexes, wildfires, droughts and other increasingly deadly weather phenomena that have developed over the past ten years.

These dangers were spelled out explicitly by the United Nations Intergovernmental Panel on Climate Change in its Sixth Assessment Report published last year. It notes that, as a result of “human-induced greenhouse gas emissions,” that, “recent hot extreme events would have been extremely unlikely to occur without human influence on the climate system.” The report continued, “In particular, this is the case for temperature extremes, the intensification of heavy precipitation including that associated with tropical cyclones, and the worsening of droughts in some

regions.

The science is quite clear: the ongoing crisis of climate change will produce increasingly dangerous, damaging and deadly events across the globe. At the same time, capitalism has not merely proven unwilling but incapable of solving an inherently global problem on the basis of the world’s division into rival and warring nation states. It is up to the working class, the only international social force on Earth, to abolish such an outmoded social system and end the climate crisis once and for all.



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