



2020 Wildfire Season Preview

A Data-Driven Conversation about California's Dry Winter



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Navigating a Potentially Difficult Year.



• — The Zest —



Current climate conditions in California reveal that 2020 may have a higher than normal risk for wildfire losses. The probability that California will undergo losses of more than \$10Bn in a non-drought year is ~2.5% (1 in 40 years) but that probability jumps to 3.5 % in a drought year (a whopping 40% increase). The combination of high resolution aerial imagery, property-level loss history and artificial intelligence (AI) can yield actionable insight into where future fires are more likely to flare up and how structures may fare if involved in a fire perimeter. That data can be used to help insurers better understand risk and increase transparency with homeowners, agents, and regulators.

California experienced in excess of \$30 billion in insured losses in 2017 and 2018

Without action, that staggering figure may become the new normal for the state



2020— Fire Season Preview

California's unrelenting wildfire threat faces additional challenges from ever-increasing scrutiny and government regulation. For carriers and reinsurers who underwrite property insurance in the state, things are getting more complicated.

The increased severity of recent years' wildfire events combined with the failure of traditional catastrophe risk models, it has become more difficult for carriers to underwrite property risk in California. While many of us associate "wildfire season" with summer through early fall, what happens during the preceding winter and spring is equally important. In California, summer typically brings prolonged spells of hot weather, strong wind activity and notably little precipitation. Reduction in the amount of precipitation (rain and/ or snow) during preceding winter and spring months—a situation California is experiencing more and more—results in drought. These drought conditions further contribute to a heightened potential for significant wildfires.

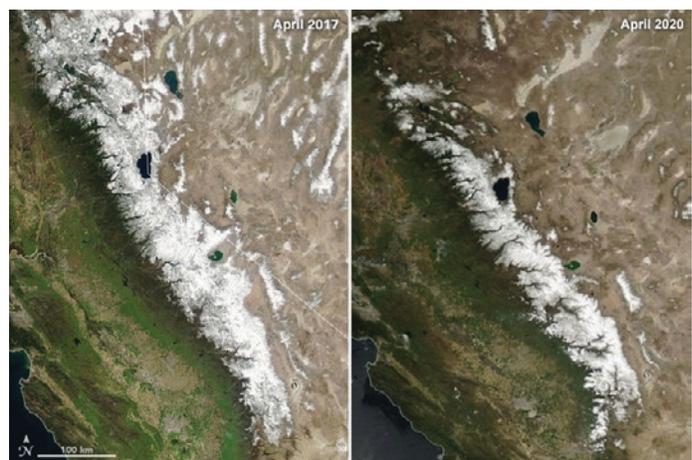
California Under the Microscope: Drought is a Leading Indicator

Early in the winter, drought conditions persisted around California. "State firefighters have responded to [280 small wildfires](#) since the beginning of the year [2020]. In the same period last year [2019], there were just 85 reported fires," cited a spokesman from the California Department of Forestry and Fire Protection, Scott McLean, in a February 28 NY Post article. One of the larger fires, the Antelope, Sierra County fire resulted in statewide attention. On March 3rd, dry conditions led to fire evacuations near Riverside, California, when a fire spread along the wildland-urban interface. Since February, soaking rains in the southern half of the state brought 41.8% of California to normal rainfall levels as of mid-April. Northern California is still contending with significant drought, suggesting that we may still have a significant fire season ahead of us this year for portions

of the state.

To assess the likelihood and level of losses from potential wildfire events, we should consider three key variables: heat, wind, and lack of moisture. Both heat and wind activity can only be predicted in 10 to 14 day forecast windows. These narrow and not always accurate windows are of little use to the insurance industry. The third variable however, lack of moisture, is a strongly correlated indicator for a challenging year. Lack of moisture can be more easily tracked and its absence affects an entire season. From studying more than 1,200 wildfire incidents, we know that prolonged drought-like conditions tend to exacerbate the spread of wildfires.

Historically, the Sierra Nevada snowpack provides roughly 30% of California's water. These images give a clear indicator that very little moisture is present, compared to the same time in 2017. On April 1st, the California Department of Water Resources [stated that](#) March precipitation had not been enough to offset the



Limited snow cover in Northern Sierra Nevada indicates a high probability for a drought year, [NASA](#).

dry winter. As of April 14th, experts deem roughly 22% of the state to be “abnormally dry,” and almost 23% is experiencing “moderate drought” conditions. In addition, nearly 13% of the state has reached “severe drought”.

The chance that rainfall will occur in California between May and the end of October is very low. While late season rain through the end of April is possible, mounting evidence seems to portend that 2020 losses have a much higher chance of being significant, particularly in Northern California, if prolonged periods of little precipitation prevail.

What Insurance Providers can do Today to Prepare for Tomorrow

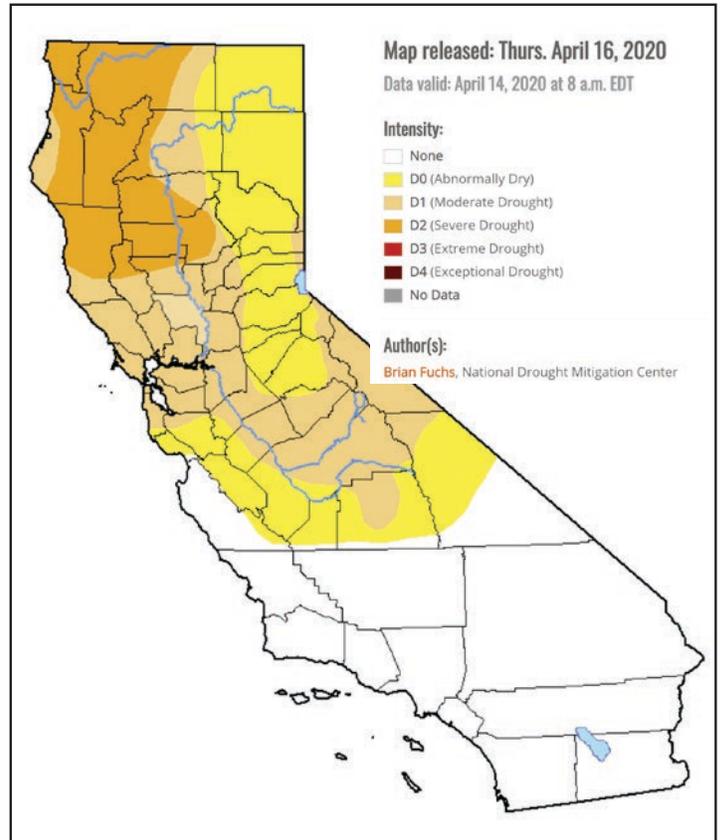
In California, drought conditions can often be determined up to six months in advance. With the knowledge that drought-like conditions greatly influence the possibility of wildfire, what can insurance providers do today to prepare for this summer and fall?

1. Understand the Data:

- According to Zesty.ai research, wildfires destroy almost twice as much land in drought years, as compared to normal years (87% more acres, to be precise).
- The number of drought years has been on the rise: Northern California had its [driest February since 1864](#).
- The number of wildfires has been on the rise: [9 of the most destructive 20 wildfires in California have occurred in the last 10 years](#).
- January and February 2020 were extraordinarily dry in California (these months normally record approximately 36% of annual precipitation). March and April rains were predominantly located in Southern California.

2. Continue to Bring Transparency and Education to Homeowners:

Technology really is a better answer. Using satellite imagery combined with artificial intelligence, it is possible to not only see what mitigation actions a policyholder has taken around the property, but also gain a detailed understanding of how the property may fare in a wildfire.



Severe and moderate drought conditions will likely persist through the summer and fall in Northern California, [Drought.gov](#).

These insights may be passed on to homeowners and agents enabling a much better understanding of wildfire risk. By pinpointing what additional steps (e.g., clearing out brush and creating more defensible space around the property, upgrading with fire-resistant building materials etc.) may be taken to better safeguard property, outcomes for both carriers and their customers could be greatly improved in the event of disaster.

3. Find the Right Technology Partner:

As mentioned above, Zesty.ai ingested loss data from more than 1,200 wildfires—leveraging the latest technology to extract insights on every single property involved. Aerial and satellite imagery, machine learning, and infinitely scalable computing resources in the cloud were combined to build the most granular wildfire risk assessment model (Z-FIRE™). Using Z-FIRE™, Zesty.ai can accurately estimate an individual property’s wildfire risk, plus highlight the key property-level factors that contribute to that risk.

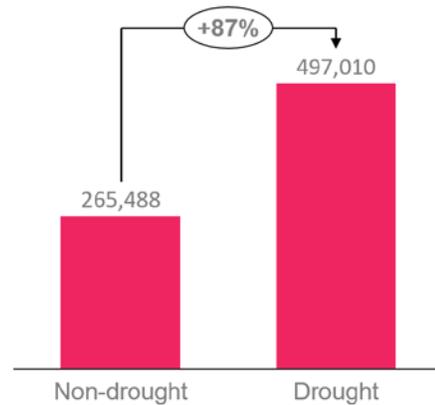
The detailed property-level information was combined with thousands of years of simulations of how wildfires originate, spread and eventually get extinguished, to develop Z-FIRE PORTFOLIO™. Z-FIRE PORTFOLIO™ can provide an assessment of risk in a carrier’s in-force book under a variety of conditions - with estimates on Average Annual Loss (AAL) and Probable Maximum Loss (PML).

Knowing, not Guessing, About Wildfire Risk:

Using Z-FIRE™ and Z-FIRE PORTFOLIO™, insurance carriers, MGAs and reinsurers can get access to actionable insights developed from detailed property-level risk factors. While wildfire losses may be inevitable, understanding in detail how individual properties contribute to average and tail risks is a large step forward.

The specific time and location of a wildfire is nearly impossible to predict. However, Z-FIRE™ and Z-FIRE PORTFOLIO™ can give carriers a head start. Knowing, not guessing, which properties fall into a high risk category is more important now than ever. We look forward to helping our customers through this fire season and many to come.

Impact of drought on acreage burnt in wildfire Acreage burnt per year – last 100 years



In a drought year, almost twice as many acres are burnt in wildfire, pushing fires closer to the wildland-urban interface, [Zesty.ai](#) Research.

Z-FIRE™ and Z-FIRE PORTFOLIO™ Can Assist Carriers With:

- Improved Risk Selection
- Premiums Commensurate with Risk
- Decreased Loss Ratio
- Effective Concentration Risk Management
- Better Reinsurance Pricing
- Increased Reinsurance Capacity



For more information about Z-FIRE:

Contact hello@zesty.ai

Reach us online at <http://zesty.ai>

Sources:

"California wildfire industry losses put at \$13.2bn by Aon Benfield." Artemis.bm. January 25, 2018. Retrieved August 30, 2018.

Roland Li (May 9, 2019). *"State wildfire insurance claims top \$12 billion."* San Francisco Chronicle. p. D1.

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"California's Three Traditionally Wettest Months End With Statewide Snowpack Water Content Less than Average" (PDF). Water.ca.gov. Retrieved 17 October 2017.

NASA Earth Observatory - NASA Imagery