OASH | Office of Climate Change and Health Equity

Climate and Health Outlook

ISSUED MARCH 2023

The Climate and Health Outlook is an effort to inform health professionals and the public on how our health may be affected in the coming month(s) by climate events and to provide resources for proactive action. An associated webpage includes additional resources and information.

In the coming months, the Southeast, most of the Southern Great Plains, and parts of the Southwest will experience temperatures 0.9–3.6 °F (0.5–2 °C) warmer than normal. The Northeast, Hawai'i, and parts of the Midwest will experience temperatures 0.45–1.8 °F (0.25–1 °C) warmer than normal. Some of the Northern Great Plains will experience temperatures 0.45–0.9 °F (0.25–0.5 °C) warmer than normal. Warming winters and early spring months can cause earlier and longer allergy seasons, aggravating conditions such as allergic asthma. Increasing winter temperatures can also contribute to earlier onset of vector-borne diseases such as Lyme disease.

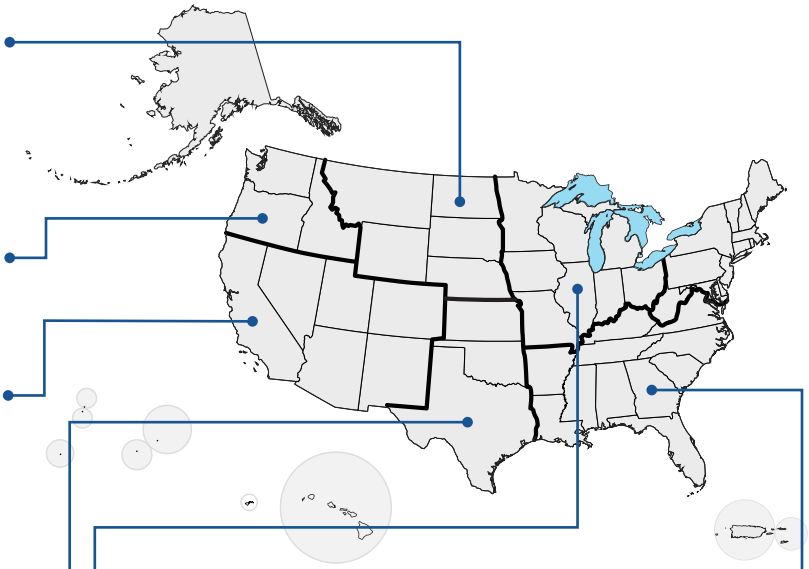
Northern Great Plains: Drought is favored to persist in Nebraska and parts of Montana, North Dakota, South Dakota, and Wyoming. Drought removal and improvement is favored in western Wyoming, and drought removal is favored in parts of southeastern North Dakota and eastern South Dakota.

Northwest: Drought is favored to persist in much of Oregon and Idaho. Drought improvement and removal is favored in parts of eastern Idaho.

Southwest: Drought is favored to persist in parts of California, Nevada, Utah, Arizona, Colorado, and New Mexico. Drought improvement and removal is favored in much of California, Nevada, and Utah. Above normal wildland fire* potential is forecast for much of southern New Mexico.

Southern Great Plains: Drought is favored to persist or develop in parts of Texas. Drought is favored to persist in much of Kansas and Oklahoma, and drought improvement and removal is favored in parts of Oklahoma. Above normal wildland fire potential is forecast for portions of southern and western Texas. Below normal wildland fire potential is forecast for portions of eastern Oklahoma.

Midwest: Drought is favored to persist in parts of Iowa, Minnesota, and Michigan. Drought improvement and removal is favored in parts of Iowa and Minnesota, as well as small portions of Michigan.



Southeast: Drought is favored to persist or develop in much of Florida. Drought is favored to persist in a small portion of southeastern Georgia. Above normal wildland fire potential is forecast for much of Florida and the Georgia coast. Below normal wildland fire potential is forecast for Arkansas, Kentucky, and Tennessee; northern Alabama, Georgia, and Mississippi; and western North Carolina, South Carolina, and Virginia.

Drought Wildfire

*Smoke from wildfires can impact health hundreds of miles from the site of the fire.

Developed with data from the National Oceanic and Atmospheric Administration and the National Interagency Fire Center.

We want to hear from you! Please send your feedback on ways to improve the Climate and Health Outlook to ocche@hhs.gov.

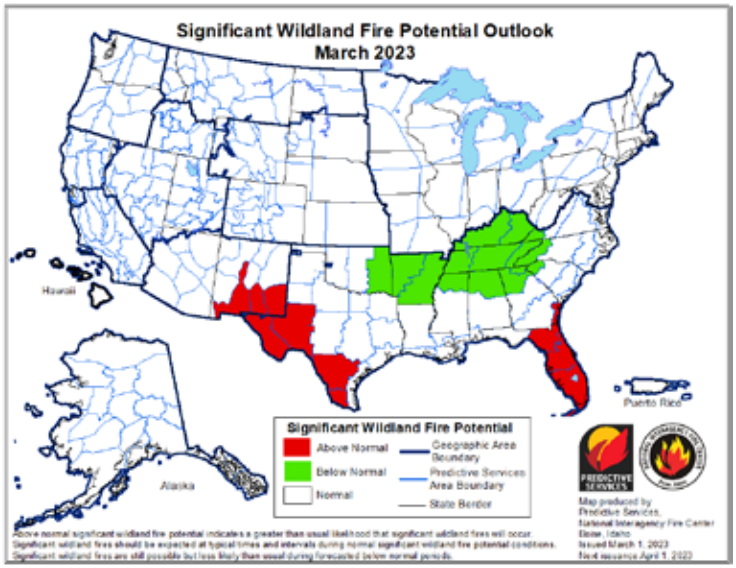


Figure. The National Significant Wildland Fire Potential Outlook identifies areas with above, below, and near normal significant fire potential using the most recent weather, climate, and fuels data available. This outlook is designed to inform decision makers on proactive wildland fire management.

In March, above normal significant fire potential is forecast for the Florida Peninsula and Georgia coast in March. Above normal potential is also forecast for southern New Mexico in March. Portions of south and west Texas are forecast to have above normal potential in March. Below normal significant fire potential is forecast for much of the northern tier of the Southern Area, from eastern Oklahoma into the southern Appalachians.

Significant fire activity was minimal across much of the United States during February thanks to timely periods of precipitation. However, a small increase in significant fires occurred over portions of the Southwest and Southern Areas from eastern New Mexico to the Gulf Coast.

Who is at high risk in the counties with above normal wildland fire potential in March?

Wildland fires are occurring more frequently in the United States and present a health hazard for populations living close to a fire. As indicated in the map to the left, **127 counties** across **4 states** are projected to have above normal wildfire potential in March. In these counties, the total population at risk is **26,943,672 people**. Of these counties:

28 (22%) have a high number* of people aged 65 or over, living alone.

91 (72%) have a high number of people without health insurance.

75 (59%) have a high number of uninsured children.

38 (30%) have a high number of people with frequent mental distress.

26 (20%) have a high number of adults with coronary heart disease.

52 (41%) have a high number of people living in poverty.

49 (39%) have a high number of people with electricity-dependent medical equipment and enrolled in the HHS emPOWER program.

51 (40%) have a high number of people with severe housing cost burden.

55 (43%) have a high number of people in mobile homes.

36 (28%) have a high number of people with one or more disabilities.

66 (52%) are identified as highly vulnerable by CDC's Social Vulnerability Index.

*"A high number" indicates that these counties are in the top quartile for this indicator compared to other counties.

2022 National Fire Activity Synopsis

Nationally, **68,988 wildfires were reported in 2022**, compared to 58,985 wildfires reported in 2021. Reported wildfires consumed **7,577,183 acres nationally**, compared to 7,125,643 acres in 2021. In 2022, the reported number of wildfires nationwide was noticeably higher than the 10-year average, while acres burned nationwide varied little from the 10-year average. However, there was considerable variation among the geographic areas. Alaska and the Southern Areas (AL, AZ, AR, FL, GA, KY, LA, MS, NM, NC, OK, SC, TN, TX, and VA) saw an increase in the number of fires when compared to their average fire statistics, and burned significantly more acreage. The Alaska Area burned greater than 170% of its average acres. The Southwest Area (AZ and NM) was 25% below its average number of fires, while burning greater than 90% more acres than average. The Southern California and Northwest Areas (OR and WA) were near their 10-year average for numbers of fires. However, in 2022, California accounted for the **highest number of structures lost to wildfire in one state**, including 492 residences. The other Areas in the country were noticeably lower than their 10-year averages for fire occurrences. For more information, see the NIFC Wildland Fire Summary and Statistics Annual Report 2022.

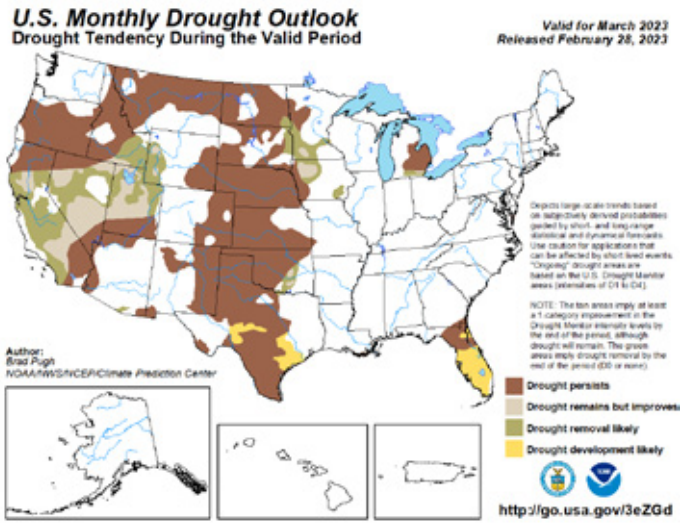


Figure. The National Weather Service Climate Prediction Center's Monthly Drought Outlook is issued at the end of each calendar month and is valid for the upcoming month. The outlook predicts whether drought will persist, develop, improve, or be removed over the next 30 days or so. For more information, please refer to drought.gov.

For March, continued drought improvement or removal is forecast for much of California and the Great Basin. Drought is favored to persist across the northwestern states and Great Plains, with potential drought development in parts of central and southeastern Texas. Drought improvement and removal is forecasted across small portions of east-central Oklahoma. Drought development is likely across the Florida Peninsula due to an unseasonably warm, dry February and a likely dry start to March. Drought improvement or removal is forecasted for southern Minnesota and much of Iowa. The Northeast, Alaska, Hawai'i, and Puerto Rico are likely to remain drought-free through the end of March.

Drought can have direct and indirect impacts on health—increasing incidence of illness among those living in the affected area and worsening mental health outcomes as livelihoods are challenged.

Who is at high risk in the counties projected to have drought in March?

As indicated in the map to the left, **869 counties** across **25 states** are projected to have persistent/remaining drought or drought development in March. In these counties, the total population at risk is **74,039,002 people** and, of those, **750,082 people** work in agriculture. Of these counties:

311 (36%) have a high number* of people aged 65 or over, living alone.

313 (36%) have a high number of people living in rural areas.

165 (19%) have a high number of people living in poverty.

122 (14%) have a high number of people with frequent mental distress.

93 (11%) have a high number of adults with asthma.

359 (41%) have a high number of people without health insurance.

473 (54%) have a high number of uninsured children.

75 (9%) have a high number of Black or African American persons.

164 (19%) have a high number of people with severe housing cost burden.

159 (18%) have a high number of people in mobile homes.

169 (19%) have a high number of people with one or more disabilities.

202 (23%) are identified as highly vulnerable by CDC's Social Vulnerability Index.

*"A high number" indicates that these counties are in the top quartile for this indicator compared to other counties.

Drought Affects Health in Many Ways

Drought increases the risk for a diverse range of health outcomes. For example:

Low crop yields can result in rising food prices and shortages, potentially leading to **malnutrition**.

Dry soil can increase the number of particulates such as **dust and pollen** that are suspended in the air, which can irritate the bronchial passages and lungs.

Dust storms can spread the fungus that causes coccidioidomycosis (**Valley Fever**).

If there isn't enough water to flow, waterways may become stagnant breeding grounds for **disease vectors** such as mosquitos as well as viruses and bacteria.

Drought's complex economic consequences can increase **mood disorders, domestic violence,** and **suicide**.

Long-term droughts can cause **poor-quality drinking water** and leave inadequate water for hygiene and sanitation.

Spring Pollen Season

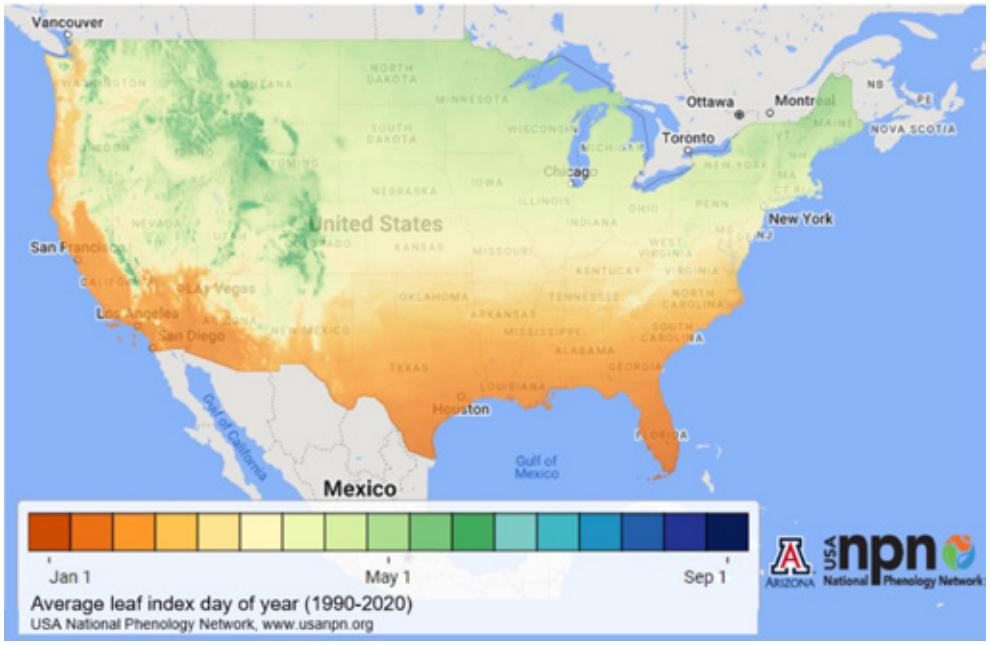


Figure: This map from the USA National Phenology Network (USA-NPN) shows when springtime activity in plants typically began over the last 30 years. The start of spring occurs on the date when enough heat has accumulated to initiate growth (leafing and flowering) in temperature-sensitive plants. On average, the start of spring has occurred earlier in the contiguous United States since 1984. The United States Global Change Research Program uses data from the USA-NPN as an indicator for the start of the spring season.

Climate change may lead to both higher pollen concentrations and earlier and longer pollen seasons, potentially causing more people with asthma and allergies to suffer adverse health effects. One study found that nationwide, total pollen amounts increased up to 21% between 1990 and 2018, with the greatest increases recorded in Texas and the Midwest.

The American Academy of Allergy, Asthma & Immunology National Allergy Bureau certifies pollen monitoring stations and has a network that spans different parts of the country. However, those stations are sparsely distributed (especially in rural areas) and pollen monitoring is not always done consistently throughout the year, so there may or may not be active monitoring near you.

Start of Spring Across the United States as of March 1, 2023

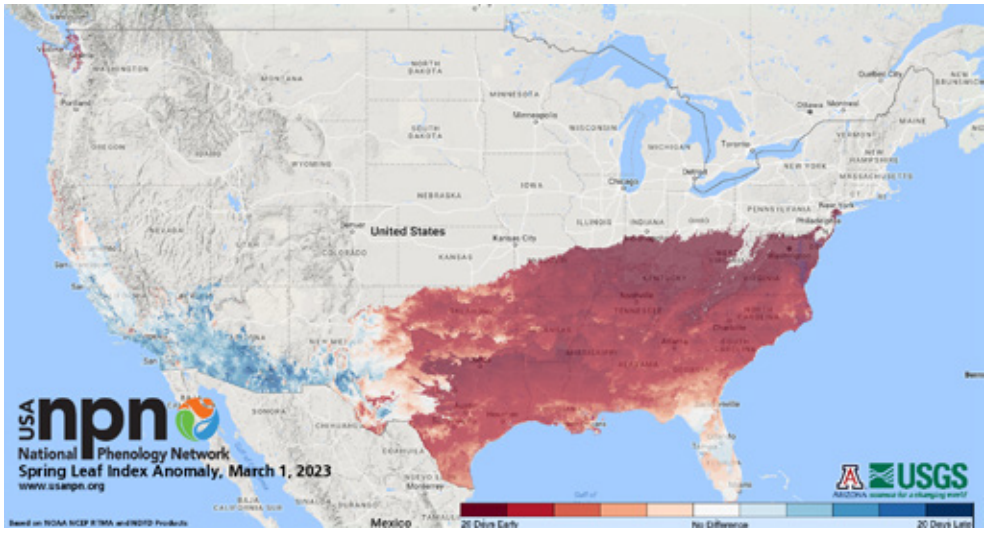
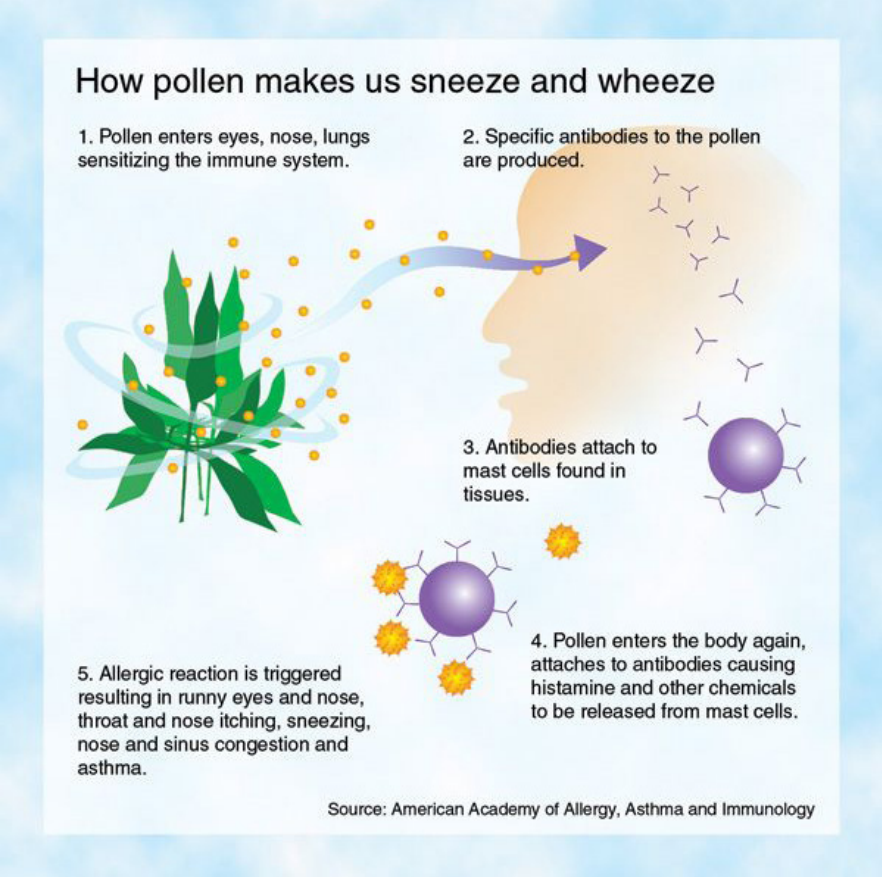


Figure: This map depicts where springtime biological activity has begun earlier than average (in red tones) and later than average (blue tones) so far this year. We can expect an earlier start to the pollen season in regions experiencing an earlier than normal start to spring. For more information, visit the USA-NPN Status of Spring page.

So far in 2023, the start of springtime activity has been up to three weeks ahead of schedule in the southeastern states and more than four weeks ahead of schedule in the mid-Atlantic and Northeast.

Springtime pollen release is heavily shaped by winter and spring temperatures. Plants must be exposed to sufficient warmth to emerge from dormancy, open their flowers, and release pollen. On average, plants release pollen about two weeks after showing signs of springtime activity.

The start of spring has appeared the earliest in 40 years in parts of Texas, Arkansas, Ohio, Kentucky, Maryland, New Jersey, and New York.



Resources to Reduce Health Risks Associated with Pollen

The **Centers for Disease Control and Prevention's** Pollen and Your Health site has information on how those with allergies or asthma can minimize pollen exposure.

The **Food and Drug Administration's** Allergy Relief for Your Child site has information on allergy medications and shots for children and how to avoid pollen and other allergy triggers. The Seasonal Allergies: Which Medication is Right for You site has information on different allergy medications for all ages.

The **National Institutes of Health National Center for Complementary and Integrative Health** has helpful tips on additional approaches you can take to manage your allergy symptoms alongside medications and other therapies.

The **USA National Phenology Network's** Status of Spring tracker shows the progression of the start of spring across the country and how the current year compares to previous years. The American Academy of Allergy, Asthma & Immunology National Allergy Bureau's map shows stations across the United States that monitor pollen levels and provide allergen reports.

NOTES FROM THE FIELD:

Dr. Stanley Fineman

Dr. Stanley Fineman from Atlanta Allergy and Asthma has been practicing allergy medicine for over 40 years and has seen firsthand the impacts of a warming climate on patients allergic to pollen. The pollen season has been starting earlier and lasting longer, leading to higher pollen counts and more intense allergy symptoms that last for longer periods of time.

Dr. Fineman reflected on how these changes to the pollen season have impacted his work:

"I had suggested that patients begin using their allergy medication, such as topical nasal corticosteroids, beginning St. Patrick's Day (March 17th), prior to the peak pollen season. Now I recommend that patients start their medications on Valentine's Day (February 14th)."

In addition to taking allergy medications earlier in the season, Dr. Fineman recommends that patients follow local pollen counts. Those who experience pollen allergies should limit their outdoor activities when pollen counts are high in their area.

Pollen Affects Health in Many Ways

Pollen is an airborne allergen that can affect our health. Pollen exposure can trigger various allergic reactions, including:

- sneezing, runny nose, and congestion
- red, watery, or itchy eyes
- asthma or other respiratory illness exacerbation

These symptoms have been linked to negative impacts on sleep, daily activities, productivity, concentration, and quality of life. Allergic asthma and seasonal allergies affect approximately 40% of the U.S. population.

THANK YOU to the partners who provide invaluable information, expertise, and data for the Climate and Health Outlook series:

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USDA

EPA United States Environmental Protection Agency

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AAAAI American Academy of Allergy Asthma & Immunology www.aaaai.org

USA npn National Phenology Network