

Pacific Northwest National Laboratory

Scientists are using satellites to help map wildfire perimeters and hot spots, like with this image of the Jack fire in Oregon.

View from space helps firefighters on the ground

By COURTNEY FLATT
Northwest News Network

Northwest researchers are looking to the skies to help monitor wildfires as well as spot new ones with a new fire behavior forecasting system. The system uses satellites to help firefighters on the ground. The views from space have helped map multiple wildfires this year. Satellites use infrared technology to peer through smoke. Data that satellites collect can supplement the often dangerous work traditionally mapped with special sensors on aircraft that fly at night above the flames.

Andre Coleman, a scientist at Pacific Northwest National Laboratory, created the system. He said the satellites can collect more data, tracking the fires multiple times throughout the day as they orbit over the Earth.

"This becomes really important as you have these big, big fires that are highly dynamic and fast moving," Coleman said.

He said, in a lot of cases, doing a once-a-day data collection just isn't enough.

While it can take helicopter pilots all night to survey fire lines, satellites can collect the data quickly. However, downloading that huge chunk of information does take time, Coleman said. He said he hopes to get the process down from around five hours to 90 minutes in the next few years. Once the information is downloaded, it takes 10 minutes to generate a map, he said.

Scientists initially developed the system to help in other disasters, such as hurricanes, floods and earthquakes. One day the system could even provide information during the Northwest's so-called Big One, Coleman said.

Last year, though, scientists realized the technology could be used to help map wildfires and predict their behavior.

Scientists have discovered they can track fire lines and can quickly draw attention to spot fires. Speed helps incident commanders plan on-the-

ground tactics, such as where to put firefighters or where to drop fire retardant, Coleman said.

The system also can help monitor smaller fires that might not receive as much support, he said.

"Our system is able to process data on any known fire in the U.S. and will do so automatically," Coleman said.

That, he said, means that small fires will be noticed as readily as larger fires.

Agencies, such as the U.S. Geological Survey, are currently using these satellites for Earth observations. Coleman has roughly six satellites he's using to gather information.

One particularly helpful tool is a system, known as ECOSTRESS, designed at NASA's Jet Propulsion Laboratory. Jet Propulsion Laboratory scientist Christine Lee, who joked that NASA has an obsession with acronyms, said that ECOSTRESS stands for Ecosystem Spaceborne Thermal Radiometer Experiment on Space Station.

The ECOSTRESS instrument is special because it's set up on the International Space Station, which takes a different orbit than other Earth observation satellites. That allows the

instrument to monitor different areas, Lee said.

Earth observation satellites have a very prescribed orbit, she said.

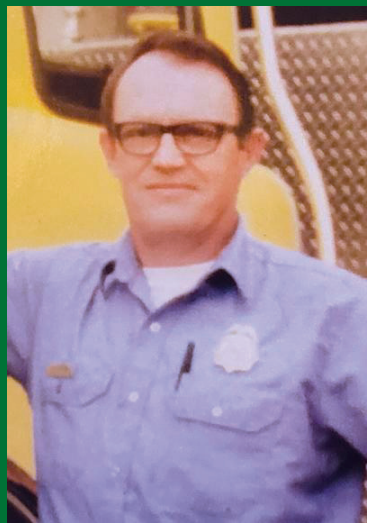
However, like the other Earth observation satellites, ECOSTRESS wasn't set up to monitor wildfires. It's main purpose is to measure high resolution thermal data. That information can show how plants are stressed when they don't have enough water. ECOSTRESS started collecting data in July 2018.

Scientists discovered that temperature measurement also works particularly well to monitor wildfires, Lee said. If the lack of water stresses different types of plants, they could be more susceptible to burning, she said.

ECOSTRESS can look at pre-fire conditions, the severity of active wildfires and how the landscape is recovering, Lee said.

She said she hopes the high resolution and frequent measurements the ECOSTRESS instrument takes will help when fires grow very large. She hopes ECOSTRESS will help other researchers gather more high resolution details about where fires are occurring.

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Extra vaccine shot approved for those with weak immune systems

By LAURAN NEERGAARD and MATTHEW PERRONE
Associated Press

WASHINGTON — U.S. regulators say transplant recipients and others with severely weakened immune systems can get an extra dose of the Pfizer or Moderna COVID-19 vaccines to better protect them as the delta variant continues to surge.

The late-night announcement Thursday by the U.S. Food and Drug Administration applies to several million Americans who are especially vulnerable because of organ transplants, certain cancers or other disorders. Several other countries, including France and Israel, have similar recommendations.

It's harder for vaccines to rev up an immune system suppressed by certain medications and diseases, so those patients don't always get the same protection as otherwise healthy people — and small studies suggest for at least some, an extra dose may be the solution.

"Today's action allows doctors to boost immunity in certain immunocompromised individuals who need extra protection from COVID-19," Dr. Janet Woodcock, the FDA's acting commissioner, said in a statement.

The FDA determined that transplant recipients and others with a similar level of compromised immunity can receive a third dose of the vaccines from Pfizer and Moderna at least 28 days after getting their second shot. The FDA made no mention of immune-compromised patients who received the single-dose Johnson & Johnson vaccine.

The announcement comes as the extra-contagious delta version of the



Charles Krupa/AP Photo

The U.S. Food and Drug Administration said transplant recipients or those with weak immune systems can get an extra shot of the Moderna or Pfizer coronavirus vaccines.

coronavirus surges through much of the country, pushing new cases, hospitalizations and deaths to heights not seen since last winter.

Importantly, the FDA's decision only applies to this high-risk group, estimated to be no more than 3% of U.S. adults. It's not an opening for booster doses for the general population.

Instead, health authorities consider the extra dose part of the initial prescription for the immune-compromised. For example, France since April has encouraged that such patients get a third dose four weeks after their regular second shot. Israel and Germany also recently began recommending a third dose of two-dose vaccines.

Separately, U.S. health officials are continuing to closely monitor if and when average people's immunity wanes enough to require boosters for everyone — but for now, the vaccines continue to offer robust protection for the general population.

The U.S. Centers for Disease Control and Prevention was expected to formally recommend the extra shots for certain immune-compromised groups after a meeting Friday of its outside advisers.

Transplant recipients and others with suppressed immune systems know they're at more risk than the average American and some have been seeking out extra doses on their own, even if it means lying about their vaccination status. The change means now the high-risk groups can more easily get another shot — but experts caution it's not yet clear exactly who should.

"This is all going to be very personalized," cautioned Dr. Dorry Segev, a transplant surgeon at Johns Hopkins University who is running a major National Institutes of Health study of extra shots for organ recipients. For some people, a third dose "increases their immune response. Yet for some people it does not seem to. We don't quite know who's who yet."

One recent study of more than 650 transplant recipients found just over half harbored virus-fighting antibodies after two doses of the Pfizer or Moderna vaccines — although generally less than in otherwise healthy vaccinated people. Another study of people with rheumatoid arthritis and similar autoimmune diseases found only those who use particular medications have very poor vaccine responses.

CLATSOP CARE HEALTH & REHABILITATION CENTER

An update from your local nursing home

As a not-for-profit community supported organization, it's very important to us to keep the community informed of what's happening in our facility. That's why we've decided to share updates each week in the local paper.

MASK UP FOR US

Throughout this pandemic, we've seen how simple solutions can have a great impact. With the surge in COVID cases related to the delta variant, **please remember to wear your mask in public.** This small sacrifice can keep people safe and save lives.

We have recently experienced 4 COVID cases in our building. These cases are directly related to the surge of cases in our community. Our ability to keep people safe inside the building depends on our community as a whole. Help us stay safe.

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