

COSMOS

THE SCIENCE OF EVERYTHING

Issue 91 Winter 2021

TIME TRAVEL

EARTH'S EPIC HISTORY
AND THE FUTURE OF LIFE



New Ancestor?
DNA detectives
on the hunt

**Tetris and
Telepathic Mice**
Mind meld made real

High Revolution
Gaia telescope's
galactic gaze

Ri Aus

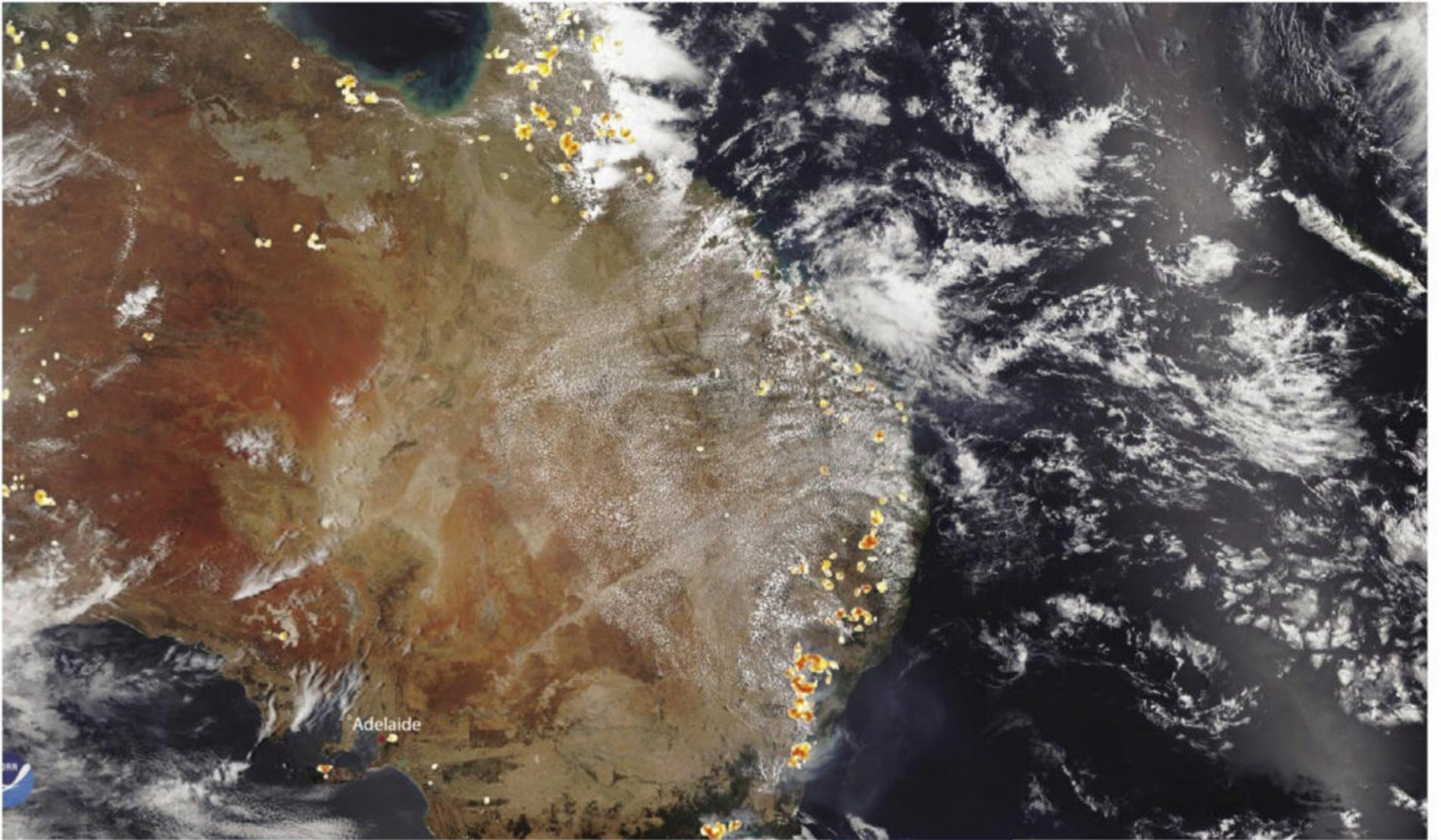


9 771832 522008

AU \$15.00 NZ \$16.00

Spotting spot fires from space

Eyes in the sky may help put out bushfires within minutes.



Storm-chasing drones, smart water bombers and a constellation of bushfire-spotting satellites could be the key to reducing Australia's devastating bushfire toll.

Imagine if lightning strikes a tree in a remote valley. A satellite detects it via infrared sensors and notifies a drone. The camera-equipped drone zips to the site, and the blaze is confirmed.

Then a C-130 plane, flying high and safe overhead, drops a water-carrying glider with an automated guidance system over the fire, putting it out before it can become a devastating bushfire.

That's just part of the ambitious fire-fighting plan being developed by the Australian National University National

Bushfire Initiative. Working with Optus, they plan to launch the satellites in 2022.

Initiative director Marta Yebra says they're working on a range of technologies that will also monitor fuel loads, moisture levels and weather.

But there's more. "For example, on-ground sensors for early fire detection – but they have very limited range in terms of the areas...so they can only be mounted in specific places, like places at high risk, or on highways, or places of high ecological value that you want to protect," she says.

"Then you have another layer that would be cameras mounted in towers that have a bigger range of view, and then we have drones – as we go up we have a larger

▲ NOAA satellite images of the 2019 bushfires in Australia.

landscape overview, and then ultimately low Earth orbit and geostationary satellites."

Drones can be equipped with technology that will identify the driest areas, as well as areas with the biggest fuel loads.

"If you combine that with the prediction of lightning, for example, the drones can chase the lightning storms," Yebra says. "So you can then deploy them based on fire risk."

Queensland start-up Fireball International is using similar technology in California, and has started testing in Australia. It recently signed a deal with Space Machines Company to put its satellite into orbit in 2022 using a Gilmour Space Technologies rocket.