

## News in focus

pill of a new HIV drug, islatravir, prevents HIV. Another is examining the performance of a matchstick-sized implant – to be embedded in a person's upper arm – filled with islatravir. He remains enthusiastic about the treatments, despite the cabotegravir results, saying that a monthly pill or an implant might appeal to people who feel a stigma in taking a drug every day to prevent HIV.

Landovitz agrees. "I take a step back and remember that we've seen remarkable results," he says. "This could be incredible, so let's just figure out how to minimize the risk to individuals."

But some of the communities that these researchers are trying hardest to reach because they have high rates of HIV might not react to the news so optimistically. Levi Maxwell, a Black transgender community activist in San Francisco, California, warns that the news on cabotegravir could cause

a backlash. "The answer is not to tell people this is better than nothing," they say. Maxwell explains that many Black and transgender people are wary of government officials and scientists because of a history of harm and discrimination. That mistrust might be exacerbated by a negative effect – even a rare one – caused by a drug meant to prevent HIV.

Maxwell recommends that HIV scientists concentrate on developing new forms of PrEP that don't cause drug resistance. And they suggest that HIV-prevention researchers push for policy changes to improve the conditions that put Black and transgender people at risk of HIV infection in the first place, such as unaffordable housing and mass incarceration. "Scientists may be well intentioned, but they need to understand that they can't have tunnel vision if they want to succeed in their goals," says Maxwell. "This isn't just a medical issue."

of the pandemic, and a wildfire in June caused a longer closure, yet the Catalina survey still discovered 1,548 near-Earth objects. These included a rare 'minimoon' named 2020 CD3, a tiny asteroid less than 3 metres in diameter that had been temporarily captured by Earth's gravity. The minimoon broke away from Earth's pull last April.

A further batch of 1,152 discoveries last year came from the Pan-STARRS survey telescopes in Hawaii. The finds included an object named 2020 SO, which turned out to be not an asteroid, but a leftover rocket booster that had been looping around in space since it helped to launch a NASA mission to the Moon in 1966.

### Close calls

Some of the asteroids discovered last year came close to Earth – at least 107 of them passed the planet at a distance less than that of the Moon. Last year's close shaves included the tiny asteroid 2020 QG, which skimmed just 2,950 kilometres above the Indian Ocean in August. That made it the closest known approach – a record broken just three months later by another small object, 2020 VT4. That one passed less than 400 kilometres from the planet, and wasn't spotted until 15 hours after it had whizzed by. Had it hit, it would probably have broken apart in Earth's atmosphere.

All of these discoveries are making astronomers more aware of the billiard-ball nature of the Solar System, where plenty of asteroids ping around in the space near Earth. The recent push to observe Apophis highlights how astronomers around the world can work together to assess the threat posed by asteroids, says Reddy.

"It's been a huge international effort," he says, "and a lot of fun." By the time Apophis comes around again, in eight years' time, scientists will have an even more detailed census of threatening space rocks.

# RECORD NUMBER OF NEAR-EARTH ASTEROIDS DISCOVERED IN 2020

## Despite pandemic disruption, astronomers detected thousands of these small rocky worlds last year.

By Alexandra Witze

**A** 340-metre-wide space rock named Apophis whizzed safely past Earth on 6 March. The next time it returns, in 2029, won't be so uneventful: Apophis will come within 40,000 kilometres of the planet, skimming just above the region where some high-flying satellites orbit. Never before will astronomers have been able to watch such a big asteroid pass so close to us.

The 6 March fly-by gave scientists an opportunity to test the worldwide planetary defence system, in which astronomers quickly assess the chances of an asteroid hitting Earth as they follow its path across the night sky. "It's a fire drill with a real asteroid," says Vishnu Reddy, a planetary scientist at the University of Arizona in Tucson who coordinated the observing campaign.

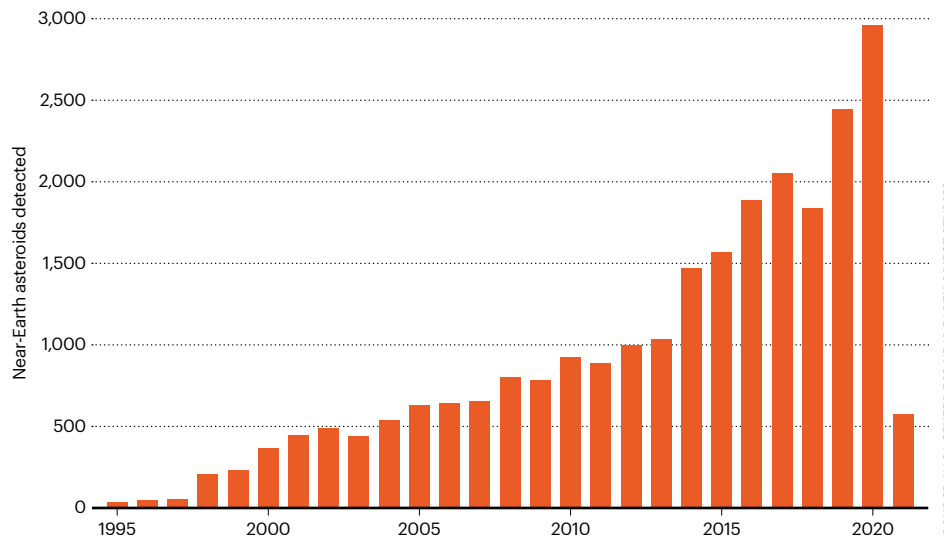
The Apophis fly-by highlights how much astronomers have learnt about near-Earth asteroids – and how much they still have to learn. Since 1998, when NASA kicked off the biggest search for near-Earth asteroids, scientists have detected more than 25,000 of them. And 2020 turned out to be a record year for discoveries. Despite the COVID-19 pandemic interrupting many of the surveys, astronomers

catalogued 2,958 previously unknown near-Earth asteroids over the course of the year (see 'Space rocks').

A large number came from the Catalina Sky Survey, which uses three telescopes in Arizona to hunt for threatening space rocks. Operations closed briefly last spring because

### SPACE ROCKS

Astronomers catalogued almost 3,000 near-Earth asteroids in 2020.



SOURCE: NASA CENTER FOR NEAR-EARTH OBJECT STUDIES