News in brief

HUGE RADIO TELESCOPE DAMAGED BY CABLE BREAKAGE

The 305-metre-wide dish of the Arecibo Observatory in Puerto Rico — one of the world's pre-eminent radio telescopes — has been damaged by a cable that broke unexpectedly. The cause of the breakage on 10 August is currently unknown, and astronomical observations at the facility have been suspended indefinitely until the damage can be repaired.

One end of the cable slipped out of its socket in the middle of the night and fell, smashing around 250 of the 40,000 panels that make up the main dish and leaving a 30-metre gash. Engineers are investigating what went wrong. The 8-centimetre-thick cable is one of several installed more than two decades ago, and had been expected to last for another 15–20 years.

Observatory director Francisco Córdova said in a press briefing that it wasn't yet clear whether several natural disasters that have ravaged Puerto Rico — including Hurricane Maria in 2017 and a magnitude-6.4 earthquake in January this year — contributed to the failure. "Our commitment is to get this back up and running as quickly as possible," he said. The Arecibo dish typically observes a wide range of astronomical phenomena, including the cosmic flashes known as fast radio bursts, and asteroids that are potentially hazardous to Earth.

L TO R: ARECIBO OBSERVATORY/UNIV. CENTRAL FLORIDA; MATT STONE/MEDIANEWS GROUP/*BOSTON HERALD* VIA GETTY; JASON OGULNIK FOR *NATURE*

FIRST EVIDENCE THAT ANTIBODIES PROTECT AGAINST SARS-COV-2 REINFECTION

A COVID-19 outbreak on a US fishing boat has provided what scientists say is the first direct evidence that antibodies against the new coronavirus protect people from reinfection.

After a viral infection, the immune system makes compounds called neutralizing antibodies that can attack the virus if it invades again. But previous research had not determined whether such antibodies can shield humans from SARS-CoV-2 reinfection.

Alexander Greninger at the University of Washington School of Medicine in Seattle and his colleagues tested the crew of a fishing vessel for SARS-CoV-2 and for antibodies (A. Addetia *et al*. Preprint at medRxiv http://doi.org/d6qm; 2020). Before the ship's departure, the researchers tested 120 of the 122 crew members and found that all were negative for SARS-CoV-2, but an outbreak hit the ship soon after departure.

Post-voyage testing showed that 104 members of the crew were infected. None of those who were infected and had been tested before embarking had shown neutralizing antibodies against SARS-CoV-2.

However, all three crew members who did have such antibodies before departure escaped infection.

2019 AMONG THE THREE HOTTEST YEARS ON RECORD

An international review of the world's climate has found that 2019 was one of the three hottest years on record.

The mean annual global surface temperature last year was about half a degree above the 1981–2010 average, according to the most recent annual *State of the Climate* report, which was compiled by scientists with the National Oceanic and Atmospheric Administration (NOAA) and released on 12 August.

The global concentration of heat-trapping greenhouse gases in the atmosphere climbed to a record high of almost 410 parts per million in 2019, which in turn led to a record number of extremely warm days. The year also had the second-highest average global sea surface temperature on record, surpassed only by 2016, when there was an El Niño warming event, the report says.

Although last year was among the hottest on record, its exact rank depends on the data set used. According to data from NOAA and NASA, 2019 was the second-hottest year since records began in the nineteenth century. The UK Met Office, which runs independent climate measurements, lists last year as the third-hottest on record, behind 2016 and 2015.

The report notes that, regardless of which historical data set is used, the six warmest years on record have all been in the past six years.

Meanwhile, it is possible that 2020 has set a new heat record already. A temperature of 54.4 °C was recorded in Death Valley in eastern California (pictured) on 16 August. If this measurement is confirmed, it will be the highest air temperature observed on Earth in more than a century.