

EVENTS

Record rainfall

Hurricane Harvey dumped more than 127 centimetres of rain on areas east of Houston, Texas, between 25 and 29 August, making it the most extreme rain event on record in the continental United States. The previous record also occurred in Texas, when tropical storm Amelia delivered 122 cm of rain in 1978, according to data from the US National Weather Service. Harvey was a category 4 hurricane when it made landfall in Texas on 25 August but has since dissipated. At least 60 people have died as a result of the storm. See page 13 for more.

Indian satellite fails

An Indian navigation satellite that launched on 31 August has failed to reach orbit. The craft, called IRNSS-1H, was meant to replace one of seven satellites in the country's navigation system after its three atomic clocks malfunctioned last year. The rocket carrying IRNSS-1H had launched from the Satish Dhawan Space Centre on the southeast coast. But shortly after take-off, the heat shield protecting the satellite failed to separate, rendering the launch a failure, said the Indian Space Research Organisation's chief, A. S. Kiran Kumar. The satellite was built by a consortium led by Alpha Design Technologies in Bangalore.

FACILITIES

Europe's X-ray laser

The world's most powerful X-ray laser formally began operation on 1 September. The €1.2-billion (US\$1.4-billion) European X-ray Free Electron Laser (XFEL), near Hamburg in Germany, fires bright X-ray light in pulses a few hundred



KCNA VIA REUTERS

North Korean nuclear test is biggest yet

North Korea carried out its sixth nuclear-bomb test on 3 September. The explosion at an underground site in Punggye-ri had a yield equivalent to around 120 kilotons of TNT — six times greater than the country's previous test in 2016 — said NORSAR, a geoscience research foundation in Kjeller, Norway. As with previous tests, North Korea claimed it had detonated a hydrogen bomb, which uses a conventional nuclear-fission device to trigger a secondary,

more powerful fusion reaction (pictured, North Korean leader Kim Jong-un, second right, inspecting an alleged nuclear device). The event had an estimated seismic magnitude of 6.3 — bigger than previous tests — but the bomb type cannot be determined from seismic data alone. The larger blast makes North Korea's claim more credible, says NORSAR. Leakage of radioactive particles from the test site could reveal whether the blast was from a hydrogen bomb.

femtoseconds (10^{-15} seconds) long — brief enough to capture molecules frozen in time — and with wavelengths short enough to capture images at atomic resolution. The European XFEL fires at least 200 times more X-ray pulses per second than the world's four other operational XFELs, so researchers should be able to collect more data.

POLICY

UK life sciences

The UK life-sciences sector should invest in high-risk 'moonshot' projects, says a government-commissioned strategy report published on 30 August. The report was

written by John Bell, a medical researcher at the University of Oxford, in collaboration with industry, charities and academia. It proposes the creation of a Health Advanced Research Programme (HARP) that would pool public and private funding and emulate the approach of the US government's high-risk research arm, the Defense Advanced Research Projects Agency (DARPA). Bell also urges the government to review the terms under which companies are given access to valuable patient data — which could be used, for example, to develop artificial-intelligence health algorithms — from the National Health Service. The

government will review the report's recommendations.

US research cuts

The US National Center for Atmospheric Research (NCAR) in Boulder, Colorado, has announced plans to lay off 18 scientists and technical staff in response to budget pressures. NCAR's core funding — nearly US\$100 million this year — comes from the US National Science Foundation and has been flat for several years. But salaries and other costs have continued to increase. NCAR director Jim Hurrell says that the institution has chosen to cut research in areas such as climate impacts so that it can

JOAO QUENTAL (CC BY 2.0) maintain core programmes such as climate and weather modelling, and atmospheric research. The staff cuts, along with the elimination of other vacant and part-time positions, will free up around \$9 million a year.

NIH trial policy row

An open letter calling on the US National Institutes of Health (NIH) to delay the implementation of a policy that would broaden its definition of 'clinical trial' has garnered nearly 3,000 signatures. The policy, scheduled to come into effect in January 2018, is part of an NIH effort to ensure that all clinical results are publicly reported. But it would classify most studies involving human participants as clinical trials, including many that observe normal human behaviour. Such studies may need to go through extra review processes. In the letter, published on 31 August on ipetitions.com, scientists say that the policy would "unnecessarily increase the administrative burden on investigators". See go.nature.com/2exwupb for more.

RESEARCH

Amazon species

Researchers described 381 new plant and animal species in the Amazon



between 2014 and 2015, finds a report by the conservation organization WWF. The list was compiled by reviewing scientific publications, and includes Milton's titi monkey (*Callicebus miltoni*) and the western puffbird (*Nystalus obamai*; pictured). The report, released on 31 August, found that many of the organisms live in protected areas of the rainforest, but that the regions are threatened by deforestation, farm expansion and other human activities in Brazil.

PEOPLE

NASA nominee

James Bridenstine, a Republican member of the US Congress from Oklahoma, was nominated to be the next head of NASA on 1 September. Bridenstine, a former US Navy pilot, is a supporter of commercial spaceflight and

has repeatedly argued that the United States should return to the Moon. But he has also expressed scepticism about climate change: he has disparaged the role of humans in global warming and argued to exclude greenhouse gases from federal regulation. If confirmed by the Senate, Bridenstine will lead an agency that is wrestling with developing a new heavy-lift rocket and its accompanying Orion crew capsule to fly astronauts to an as-yet undetermined destination.

HEALTH

CAR-T approval

The US Food and Drug Administration (FDA) has approved the use of a personalized cancer therapy called CAR-T for the first time. Tisagenlecleucel, made by Novartis of Basel, Switzerland, is a treatment for acute B-cell lymphoblastic leukaemia that involves genetically modifying a patient's immune cells so that they recognize and attack cancerous cells. The therapy, approved on 30 August, can be offered to people under 25 whose cancer has returned after they have tried other treatments. CAR-T therapies have been hailed as game-changers but pose serious risks, including seizures and inflammatory reactions. On the same day, the FDA approved

a drug by Genentech in South San Francisco, California, to treat the inflammatory effects.

Zika vaccine pulled

French drugmaker Sanofi is halting development of a vaccine against the Zika virus, it announced on 1 September. Last year, the firm signed a deal to trial and produce a candidate vaccine developed by the US government's Walter Reed Army Institute of Research. Sanofi received US\$43 million for the project from the US Biomedical Advanced Research and Development Authority (BARDA), a government biodefence agency. But the drugmaker says that last month, BARDA decided to "de-scope" the contract and limit funding. As a result, Zika-vaccine development will be "indefinitely paused", Sanofi says. BARDA has partnered with other firms, including Japanese drugmaker Takeda and US start-up Moderna, to commercialize Zika vaccines, but a fall in cases of the virus worldwide is hampering field trials.

FUNDING

Italian science cash

Cash-starved university researchers in Italy are celebrating a €400-million (US\$480-million) windfall for competitive basic-research projects. Research minister Valeria Fedeli announced on 3 September that she will claw back €250 million from the coffers of the Italian Institute of Technology in Genoa. The money makes up nearly two-thirds of a cache of public funds that the national research centre had been given over a number of years but had controversially banked instead of spending. For more than a year, scientists have campaigned for the funds to be freed up for basic science. Fedeli said that she had cobbled together a further €150 million from other budget sources.

TREND WATCH

Increasing numbers of suspected 'predatory' journals in neurology, neuroscience and rehabilitation are having their articles indexed in PubMed, finds a survey (A. Manca *et al. Lancet* 390, 734–735; 2017). Predatory journals do not provide standard services such as peer review but charge publication fees. The survey used a catalogue of questionable open-access journals called Beall's list, which is now offline, and tracked how many had articles indexed in PubMed. The proportions for all fields grew from October 2016 to April 2017.

PREDATORY JOURNALS INDEXED IN PUBMED

The proportion of suspected 'predatory' open-access journals* in the fields of neuroscience, neurology and rehabilitation indexed in PubMed increased over a six-month period.

