

SEVEN DAYS

The news in brief

EVENTS

Record smasher

The world's most powerful particle collider has set a new record and surpassed its own target for data collection. CERN, Europe's particle-physics lab near Geneva, Switzerland, announced on 1 November that the Large Hadron Collider (LHC) performed around 7 quadrillion (10^{15}) proton-proton collisions during its 2016 run, which ended on 25 October. This is 60% higher than its target for the period, and the amount of data collected by the detectors in 2016 exceeded the total for 2010 to 2015. The LHC will now smash together protons and lead ions for a month, before shutting down until May 2017 for repairs and upgrades.

Korean ship launch

South Korea launched its huge new research vessel *Isabu* on 2 November. The 5,900-tonne ship is substantially larger than the country's previous flagship, the 1,422-tonne *Onnuri*. During *Isabu's* maiden voyage to the northwest Pacific Ocean and the Indian Ocean, researchers aboard will look at the effects of climate change on currents and study organisms living near geothermal springs. The vessel, which is equipped to perform sea-floor-penetrating seismic surveys and to collect sediment cores up to 30 metres long, heralds an expansion of the country's marine-science capabilities.

SPACE

Heavy lifter

China launched its biggest rocket yet on 3 November, taking it a step closer to assembling a permanently



SAJJAD HUSSAIN/AFP/GETTY

Delhi choked by worst smog in years

Delhi has endured several days of heavy smog — reportedly the city's worst in 17 years. Measurements at the US embassy in the Indian capital showed an air-quality-index value of 999; around 300 is considered hazardous. Levels of harmful particles known as PM_{2.5} (those with a diameter of 2.5 micrometres or less) reached as high as 762 micrograms per cubic metre in a part of the city. The World Health Organization gives 25 micrograms per cubic metre as a guideline average limit. Among the causes blamed have been

construction dust, rising traffic, the burning of agricultural residues in neighbouring states, and the Hindu festival of Diwali, during which firework celebrations are customary. Delhi's government announced several temporary emergency measures, including the closure of schools for three days, a halt on construction and restrictions on the numbers of vehicles on roads. Delhi is one of the world's most polluted cities, according to the WHO. Estimates suggest that particulate air pollution causes one-tenth of the city's deaths.

crewed space station and sending large probes on interplanetary missions. The Long March 5 lifted off from the Wenchang launch site on Hainan Island, carrying a spacecraft to test electric propulsion systems. The launcher's ten engines provide nearly the same lift capacity as that of the most powerful rocket currently in use, the US-built Delta IV Heavy. Long March 5 is expected to carry a Chinese space station into orbit in stages starting in 2018.

POLICY

UK pollution case

A High Court judge has ruled that the UK government is not doing enough to combat air pollution, and is relying on over-optimistic pollution modelling. ClientEarth, a group of environmental law activists, argued that the environment minister had failed to take steps to address levels of nitrogen dioxide "as soon as possible", as required by European Union law. Nitrogen dioxide is largely

emitted by road vehicles. The ruling, handed down on 2 November, is the second defeat on the issue for the government in 18 months.

Plant patents

The European Commission has clarified its legal position on whether plant strains created using classical breeding and selection methods are patentable. They are not, it announced on 3 November. That puts the European Union at odds with the European Patent Office

(EPO), which after a long battle decided in March last year that they were. All EU member states belong to the EPO, which also has a further ten members. The office said that it would be considering how to align the positions. Around 320 applications for plant products created with biological methods (those that do not involve genetic engineering) are in the EPO pipeline.

Climate pact begins

The landmark Paris climate agreement, adopted in the French capital in December 2015 after years of complex international negotiations, officially took effect on 4 November. One hundred nations, accounting for 69% of global greenhouse-gas emissions, have now formally joined the deal, which aims to limit global warming to less than 2°C above pre-industrial levels. The first meeting of the 197 parties to the Paris agreement is scheduled to take place at the United Nations Climate Change Conference in Marrakesh, Morocco, which runs until 18 November.

PEOPLE

Former NAS chief

Noted atmospheric chemist Ralph Cicerone, who served as president of the US National Academy of Sciences from



July 2005 until June this year, died on 5 November. Cicerone (pictured) was a leading advocate for educating the public and politicians about topical issues such as evolution and global warming. He led a set of influential reports laying out the threats and possible responses to climate change. In the 1970s, Cicerone helped to show that chlorine atoms can break apart stratospheric ozone — a discovery that paved the way for banning chlorofluorocarbon compounds to protect the ozone layer.

RESEARCH

Trial tracker

A study that used an automated tool to trawl through thousands of records in the world's leading clinical-trials database has revealed which drug firms and academic institutions are failing to publish the results of trials. Although

the failure is already well documented, emerging software can perform a more comprehensive search than was previously possible. Ben Goldacre and Anna Powell-Smith at the University of Oxford, UK, developed the tool to search the ClinicalTrials.gov database for trials that were completed at least two years ago. The trawl found that, of 26,000 trials evaluated, 45.2% had no published results. The work, which has not yet been peer reviewed, was published on 3 November (*A. Powell-Smith and B. Goldacre F1000Research* <http://doi.org/bsnn>; 2016). See page 153 for more.

Illegal ivory

The illegal ivory trade depends almost entirely on elephants that have been recently killed, according to researchers who have carbon-dated hundreds of seized ivory tusks. Some had wondered whether corrupt governments were contributing to the trade by selling off old ivory, bit by bit, from stockpiles. Thure Cerling at the University of Utah in Salt Lake City and his colleagues measured the decay of carbon-14 isotopes in 231 ivory tusks, confiscated between 2002 and 2014, to determine when the elephants they were taken from had died. Their analysis, published on

COMING UP

17 NOVEMBER

Astronauts Peggy Whitson and Thomas Pesquet and cosmonaut Oleg Novitskiy head to the International Space Station aboard a Russian Soyuz craft, launching from the Baikonur Cosmodrome in Kazakhstan.

22–24 NOVEMBER

Researchers from across disciplines discuss the scientific and clinical aspects of sleep disorders at the 2016 Sleep Summit in London.

go.nature.com/2fa0xoz

8 November, found that only four specimens were more than five years old at the time they were seized (T. E. Cerling *et al. Proc. Natl Acad. Sci. USA* <http://doi.org/bssc>; 2016).

FUNDING

Social climbing

The Singapore government plans to invest 350 million Singapore dollars (US\$252 million) over five years in its recently formed Social Science Research Council, deputy prime minister Tharman Shanmugaratnam announced on 7 November. The council, formed last year, was launched to boost social sciences and humanities research into challenges including social integration and spurring productivity, as well as to help build up local research talent. The funding from Singapore's Ministry of Education represents a 45% increase in the ministry's spending on these fields compared with the previous five years, said Shanmugaratnam, who is also coordinating minister for economic and social policies.

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TREND WATCH

An online poll answered by thousands of *Nature* readers shows that almost two-thirds have considered quitting research, and that 15% have actually quit. The poll accompanied a News Feature published on 26 October (*Nature* 538, 446–449; 2016). The fight for funding was the greatest challenge, readers said. Almost 40% of respondents said that they work more than 60 hours a week. Many also felt that they lacked a work–life balance and that progression is judged too heavily on publication record.

SHOULD I QUIT?

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