

SEVEN DAYS

The news in brief

EVENTS

Antarctic reserve

In a diplomatic breakthrough, 24 nations and the European Union agreed on 28 October to create the world's largest marine reserve, in the Southern Ocean. The deal, which will take effect in December 2017, protects 1.55 million square kilometres of the Ross Sea, a deep Antarctic bay 3,500 kilometres south of New Zealand, from commercial fishing and mineral exploitation. The agreement became possible because of assent from Russia, which had long blocked a deal. See page 13 for more.

Cholera in Haiti

On 27 October, health officials announced plans to vaccinate 820,000 people against cholera in regions of southern Haiti that were devastated by Hurricane Matthew last month. Damage to water and sanitation infrastructure has raised the risk of a cholera outbreak. In 2010, after a devastating earthquake, the country suffered an epidemic of the disease that affected some 700,000 people, killing around 9,000. Vaccinations will begin on 8 November, according

NUMBER CRUNCH

193 km

The distance covered by the first commercial journey of a self-driving truck. Transport firm Otto, owned by Uber, delivered 51,744 cans of Budweiser beer from Fort Collins, Colorado, to Colorado Springs. Source: Otto



MASSIMO PERCOSSI/ANSA/AP

Italy hit by strongest quake in decades

A magnitude-6.6 earthquake struck central Italy on 30 October, the most powerful such event in the country since 1980. The epicentre was about 115 kilometres northeast of Rome. The town of Arquata del Tronto suffered heavy damage and Norcia's cathedral was destroyed, but no fatalities were reported. Italy's civil protection agency said that more than 15,000 people are in temporary

accommodation. The quake follows a series of tremors last week, and many towns in the region had already been evacuated following the magnitude-6.2 earthquake that hit the same area on 24 August and killed nearly 300 people, many of them in Amatrice (pictured). Geophysicists have been concerned about continuing activity in the region's complex system of faults.

to the Pan American Health Organization, which will support the campaign led by the Haitian Ministry of Health.

Mosquito test

The world's biggest test yet of an unconventional but promising method to fight mosquito-borne diseases will commence in Rio de Janeiro, Brazil, and Medellín, Colombia, scientists announced on 26 October. Mosquitoes that carry *Wolbachia* bacteria — which hinder the insects' ability to transmit Zika, dengue and other viruses — will be widely released in the cities over the

next two years, reaching an estimated 2.5 million people in each region. See page 17 for more.

PHARMACEUTICALS

EU drug agency

Ireland's health minister, Simon Harris, announced on 25 October that the country will formally bid to host the European Medicines Agency (EMA), which is widely expected to relocate from its base in London after Britain leaves the European Union. The EMA is responsible for the evaluation and approval of drugs marketed in the EU. Ireland and Spain have both

previously said that they would like to host the regulator, but Ireland's announcement is the most formal statement of intent so far. Harris said that he believes a move to Dublin would allow the EMA to retain many of its staff.

Cuban drug first

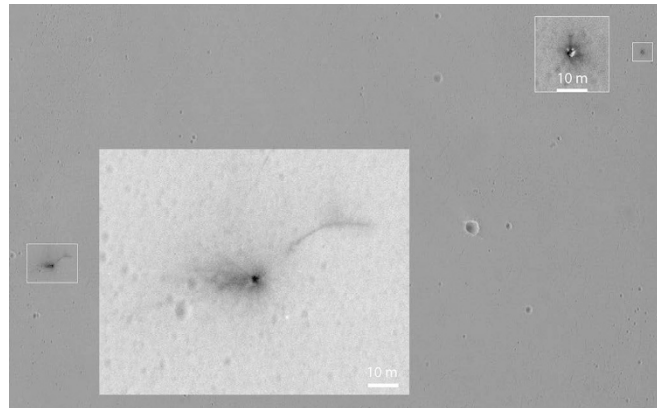
A cancer research centre in New York will host the first ever US clinical trial of a biotechnology developed in Cuba, state governor Andrew Cuomo announced on 26 October. The trial — a collaboration between Havana's Center of Molecular Immunology (CIM) and the Roswell Park Cancer Institute

NASA/JPL in Buffalo — will test the CIM's therapeutic vaccine CIMAvax-EGF in people with lung cancer. The vaccine is already approved for use in at least five countries, and researchers at both institutions think that it could eventually be used to prevent lung cancer in people at risk. The trial is a sign of thawing relations between Cuba and the United States, following the announcement last month of a US Treasury policy that authorizes US scientists to collaborate more freely with their Cuban counterparts.

SPACE

Mars crash site

NASA has released more-detailed images of the site on Mars where the European Space Agency's Schiaparelli lander met its end last month. Images taken by NASA's Mars Reconnaissance Orbiter on 25 October show three crash sites about 1.5 kilometres from each other (pictured), and suggest that a shallow crater was created by the impact. Initial indications suggest that a computing error during Schiaparelli's six-minute landing manoeuvre may have caused the craft to believe it was at a lower altitude than it really was and to jettison its parachute



too early. The craft, part of a European–Russian mission, was intended to test landing technology for a future Mars mission.

CLIMATE CHANGE

Sulfur phase-out

Ships will be banned from using high-sulfur fuel starting in 2020. The 171 member states of the International Maritime Organization, which regulates international shipping, have agreed to limit the pollutant to 0.5% in fuels by 2020, compared with an average of 3.5% today. The decision, made on 27 October at a meeting in London, will reduce sulfur oxide emissions and, the organization hopes, “have a significant beneficial impact on the environment and on human health”. But some environmental groups have criticized the deal for

failing to tackle carbon dioxide emissions. The shipping industry, a growing source of greenhouse-gas emissions, is not covered by global climate agreements such as the 2015 Paris deal.

POLITICS

Turkish rectorors

Under state-of-emergency provisions declared after an attempted military coup in July, Turkish President Recep Tayyip Erdoğan issued a decree on 29 October giving him the power to directly appoint state-university rectorors without input from the universities themselves. Previously, universities held elections to create shortlists of candidate rectorors, from which the government selected three to propose to the president. The decree also dismisses more than 10,000 civil servants,

COMING UP

3 NOVEMBER

China launches the next-generation Long March 5 rocket on its inaugural flight, from Hainan Island.

8–9 NOVEMBER

Leading researchers explain how their advances break down barriers in science and society at this year's Falling Walls conference in Berlin.

www.falling-walls.com

including 1,267 university academics, on suspicion of having links with terrorist groups. The dismissed include 24 scholars who signed an ‘Academics for Peace’ petition in January that called for an end to violence between government forces and Kurdish separatists. Critics say that people with no connection to terrorist groups are being targeted. An earlier decree in September dismissed more than 2,300 university academics, including 44 who had signed the peace petition.

PEOPLE

Prion pioneer dies

Susan Lindquist, an influential molecular biologist, died of cancer on 27 October, aged 67. Lindquist did pioneering work on heat-shock proteins, which can fix misfolded proteins. She was also recognized for her work on infectious proteins, known as prions, in yeast that cause Creutzfeldt–Jakob disease and other neurological disorders in humans. She spent 23 years at the University of Chicago in Illinois. In 2001, Lindquist joined the Whitehead Institute in Cambridge, Massachusetts, where she served as its first female director.

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TREND WATCH

Wild populations of mammals, birds, amphibians, fish and other vertebrates declined by 58% between 1970 and 2012, according to the *Living Planet Report 2016*, published on 27 October. Freshwater populations, which fell by 81%, are thought to be faring worse than terrestrial ones. Habitat loss is the main threat, with overexploitation and human-induced climate change also major culprits. If the trend continues, by 2020 the world will have lost two-thirds of its vertebrate biodiversity, says the report.

VERTEBRATE NUMBERS IN DRASTIC DECLINE

Earth's vertebrate populations fell by 58% between 1970 and 2012, with human activities much to blame.

