

SEVEN DAYS

The news in brief

EVENTS

All eyes on Mars

Planetary scientists are expecting the first successful landing of a European spacecraft on Mars. As *Nature* went to press, the Schiaparelli lander — part of the ExoMars joint mission with the Russian Space Agency, Roscosmos — was expected to touch down on the red planet on 19 October. The craft, which launched from Kazakhstan in March on a Russian rocket and separated from its mothership on 16 October, is intended to demonstrate landing technology, but it will also study dust storms that are expected to rage on Mars. The mission's second component, an orbiter, will begin orbiting Mars on the same day and will analyse the composition of the planet's thin atmosphere next year. See go.nature.com/2eduxjh for more.

POLICY

Green millions

The Green Climate Fund, the United Nations' financial mechanism for helping developing countries to deal with climate change, approved US\$745 million in funding proposals on 14 October. The money will go towards 10 new projects involving 27 nations. The Fund, which six years after it was launched has not yet disbursed any money, has now earmarked a total of \$1.17 billion for developing countries. At its meeting in Songdo, South Korea, the Fund's governing board also selected Howard Bamsey, former director-general of the Global Green Growth Institute and Australia's special envoy on climate change, as new executive director. Bamsey will replace H ela Cheikhrouhou, who has taken over as Tunisia's



MUJAHID SAFODIEN/AFP/GETTY

Protests at South African universities

Student protests over tuition fees continue to disrupt teaching and academic life at South African universities. Violent clashes between students and police have been raging on campuses for several weeks despite calls from university officials to save the academic year from breakdown. Last week, protesters threw petrol bombs at buildings in the University

of KwaZulu-Natal in Durban, where a library was torched last month. At the University of Cape Town, teaching resumed on 17 October. But other campuses, including the University of the Western Cape and the Cape Peninsula University of Technology, both in Cape Town, remain closed (pictured is Vaal University of Technology near Johannesburg).

minister for energy, mining and renewables.

Big climate win

Almost 200 nations have agreed to substantially curb their emissions of chemicals used in refrigeration and air conditioning that act as potent greenhouse gases in the atmosphere. An expansion of the Montreal Protocol, signed on 15 October at a United Nations meeting in Kigali, Rwanda, aims to reduce projected emissions of hydrofluorocarbons (HFCs) by almost 90% over the course of the twenty-first century. The protocol was created in 1987 to halt the destruction of Earth's protective ozone

layer. If left unchecked, heat-trapping HFCs, which have since replaced ozone-depleting chemicals, might have contributed up to 0.5°C of warming by the end of the century (see go.nature.com/2doehrn).

Moonshot report

The US Cancer Moonshot Task Force released a report on 17 October detailing its accomplishments and goals. The task force, which is led by US Vice President Joseph Biden, continued its call for data sharing, increased clinical trial participation and molecular tumour profiling. The moonshot aims to double the pace of cancer research.

Obama's Mars plan

US President Barack Obama reiterated his goals to send NASA astronauts to Mars in the 2030s. In an 11 October op-ed piece for CNN and at a conference in Pittsburgh, Pennsylvania, Obama said the space agency would work with private companies to develop deep-space habitats for astronauts. This includes asking companies for ideas about attaching privately built modules for living and working to the International Space Station. But with Obama leaving office in three months, the direction of NASA is up to the next president and Congress, so the goals remain uncertain at best.

PEOPLE

Comet hunter dies

Klim Churyumov, co-discoverer of the rubber-duck-shaped comet studied by the European Space Agency's Rosetta mission, has died aged 79. Working with fellow astronomer Svetlana Gerasimenko, the Ukrainian spotted the comet using a Maksutov telescope in 1969. The space agency selected the body, known as 67P/Churyumov-Gerasimenko, as Rosetta's target in 2003, and Churyumov followed the mission closely. He lived to see its finale, a crash-landing of the mother ship on the comet on 30 September. As well as being an accomplished astronomer who co-discovered a second comet in 1986, Churyumov was an avid popularizer of science and published a series of poetry books for children.

Next UN chief

Former prime minister of Portugal António Guterres (pictured, left) will be the next secretary-general of the United Nations, taking the helm after Ban Ki-moon (pictured, right) steps down on 31 December. He was appointed by the General Assembly in New York City on 13 October. Guterres, 67, studied engineering and physics in Lisbon, and had



a brief career in academia before going into politics. He was high commissioner of the UN's refugee agency for ten years until 2015, and said that alleviating the suffering of vulnerable people, and gender equality, would be key priorities for his five-year tenure as secretary-general.

RESEARCH

Galaxy glut

With the help of tens of thousands of citizen scientists from around the world, astronomers on 12 October released two data sets on the shapes of some 168,000 galaxies. The catalogues are part of the Galaxy Zoo project, which began in 2007 and has enlisted volunteers to classify nearly 1 million galaxies from the Sloan Digital Sky Survey. The latest projects (described

in two papers at <https://arxiv.org/abs/1610.03070>; 2016 and <https://arxiv.org/abs/1610.03068>; 2016) include galaxies that are farther away, with images from the Hubble Space Telescope that show galaxies up to 3.6 billion parsecs (12 billion light years) away. The results could help astrophysicists understand how galaxies have evolved.

AI manifesto

Artificial intelligence (AI) and machine learning hold significant potential for innovation and economic growth, a White House report published on 12 October concludes. Calling for government and private sector investment in research and development, the report says that regulations and standards must keep pace with the conceivable benefits of using

COMING UP

24–26 OCTOBER

Bill Gates and Richard Branson join 1,000 scientists from around the world for the Grand Challenges conference in London to share ideas on topics from crop research to menstrual hygiene.

go.nature.com/2e75xb3

2–4 NOVEMBER

The Africa Renewable Energy Forum meets in Marrakesh, Morocco, ahead of the COP22 climate meeting.

africa-renewable-energy-forum.com

AI technology in finance, health care, aviation and self-driving cars. Impacts on the economy and workforce must be scrutinized because automation in industry might particularly affect low-wage jobs, the report argues.

FACILITIES

Weighing neutrinos

The Karlsruhe Tritium Neutrino (KATRIN) experiment in Germany, which is designed to establish the elusive mass of neutrino particles, was switched on for the first time on 14 October. Neutrinos are known to have non-zero masses, but the actual values of those masses have been difficult to measure. KATRIN will weigh the extremely light particles indirectly by measuring the energies of electrons shooting out from the nuclear decay of tritium, an isotope of hydrogen. Researchers have now started beaming electrons inside the 70-metre-long, €60-million (US\$66-million) machine, and plan to begin the tritium experiment — expected to last five years — in late 2017.

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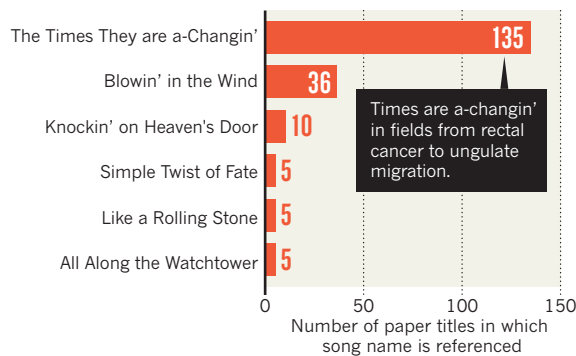
www.nature.com/news

TREND WATCH

Bob Dylan, who on 13 October became a Nobel laureate in literature, might be scientists' favourite musician. A 2015 analysis found that Dylan's song names were mentioned in at least 213 article titles (C. Gornitzki, A. Larsson and B. Fadeel *Br. Med. J.* 351, h6505; 2015); numerous fields were found to be "a-changin'". The authors concluded that Dylan's respect for the medical profession — as evidenced by his lyric "I wish I'd have been a doctor" — is reciprocated.

BOB DYLAN IN THE SCIENTIFIC LITERATURE

Songs by Bob Dylan, a newly minted Nobel literature laureate, are referenced in at least 213 paper titles in PubMed. These are the six songs that are most often mentioned (and mangled).



Based on analysis in C. Gornitzki et al. *BMJ* 351, h6505 (2015).