

NEWS IN FOCUS

PLANT BIOLOGY Famed oak reveals how trees guard against mutations **p.460**

GENOMICS Critics assail genome-wide association studies **p.463**

PUBLISHING China cracks down on fraudulent peer reviews **p.464**



GEOPHYSICS New sea-floor sensors could help to better predict the next 'big one' **p.466**

MARTIN BUREAU/AFP/GETTY



French President Emmanuel Macron spent more than three hours last week at a technology event in Paris showcasing robots, drones and artificial intelligence.

POLITICS

Macron's sweep raises hopes

Parliamentary win for French president signals support for research and innovation.

BY DECLAN BUTLER

A wave of fresh faces — including the flamboyant mathematician Cédric Villani — rose to victory in the French parliamentary elections on 18 June. Together with the science- and innovation-friendly policies announced by President Emmanuel Macron, the results have stoked optimism among many researchers in France and abroad.

They “are a real hope of dynamism for our country”, says French climatologist Jean Jouzel, a former senior figure in the

Intergovernmental Panel on Climate Change. He echoes many researchers who have responded positively to the latest election outcome and, more generally, to the president's stances since he was elected on 7 May.

“Macron is going exactly in the right direction,” says Sacha Wunsch-Vincent, an economist at the World Intellectual Property Organization in Geneva, Switzerland. He says he can't remember any French president placing such a firm focus on innovation.

With 43% of the popular vote, Macron's newcomer party, La République en

Marche! (LREM), completed a political takeover as it won a comfortable majority of 308 seats in the National Assembly, the lower house of the French parliament. That was well over the bar needed to control the 577-seat body — even without counting the 42 seats won by Mouvement Démocrate (MoDem), a centrist party allied with LREM. The outcome gives Macron the means to push his pro-business, pro-innovation and pro-European Union agenda.

The large victory of LREM, whose policies span the moderate left, right and centre, is all the more astonishing in that the party was born ▶

► barely a year ago and announced its list of candidates on 11 May, just a month before the first round of the general election. Half of its candidates were women, and a majority had no previous political experience.

LREM's new deputies include Villani, who won more than 69% of votes in his constituency, Saclay, in Sunday's run-off. Saclay is home to a cluster of research institutions that is among the largest in the country.

WARM WELCOME

Earlier this month, in one of his first actions on science, Macron launched a programme to attract leading climate scientists to work in France, offering 4-year grants of up to €1.5 million (US\$1.7 million) for senior scientists and up to €1 million for younger researchers. The move came in response to US President Donald Trump's announcement that he would withdraw his country from the Paris climate accord.

"Beyond his call for attracting scientists, Macron has shown a deep interest for climate issues," says Jouzel. A particularly hopeful sign for Jouzel was last month's appointment of Nicolas Hulot, an environmental activist and former nature-documentary presenter, as head of a powerful ministry overseeing energy and the environment.

Some scientists also cheered last week when Macron launched the French Tech Visa, a four-year, renewable, fast-track residence permit for entrepreneurs, innovators and investors. That sent an important signal of increased international openness to top talent, says Wunsch-Vincent, adding that Macron is boosting France's image as a good place to do research and create start-ups.

More generally, Macron wants to foster an entrepreneurial environment by reducing the costs of doing business, simplifying bureaucracy and making labour laws more flexible — things that some of his predecessors have attempted, but with limited success. He has also said he wants to encourage the country's entrepreneurs to focus on sectors such as robotics, artificial intelligence and green technology, which he sees as the industries of the future. He has announced a €10-billion state fund to invest in start-ups, and a €50-billion stimulus package to train young people and modernize agriculture, health care, transport and infrastructure.

Wunsch-Vincent cautions, however, that it will be several months before it becomes clearer how the various pledges will pan out, and how well they will be implemented.

Macron has admitted that the country hasn't always had the best reputation as a place for nimble innovation, but he argued that this was changing. "I want France to be a 'start-up nation,'" he said last week.

"I hope he will not disappoint the hopes he has raised," says Jouzel, "in particular in the area of jobs." ■



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The name of the 'Napoleon' oak commemorates French troops' march through Lausanne, Switzerland.

PLANT BIOLOGY

Old oak's youthful genome revealed

DNA of 234-year-old tree has surprisingly few mutations, suggesting that plants protect their stem cells.

BY HEIDI LEDFORD

The towering 234-year-old 'Napoleon' oak on the campus of the University of Lausanne in Switzerland has weathered storms both meteorological and political. The tree was young when Napoleon's troops passed through town in 1800, and it has grown into a majestic city landmark. But through it all, its genome has remained surprisingly unchanged.

Researchers at the university discovered this unexpected stability after sequencing the genome in different branches of the tree. Their work — posted on 13 June as a bioRxiv preprint, which has not been peer reviewed — meshes with a growing body of evidence that plants are able to shield their stem cells from

mutations¹. The practice may be valuable for sustaining their health over a lifespan that can reach hundreds of years.

"If you just accumulate more and more mutations, you would eventually die of mutational meltdown," says Cris Kuhlemeier, a developmental biologist at the University of Berne in Switzerland.

Each time a cell divides, mutations can arise because of errors made while copying the genome. Animals shield their reproductive cells from these mutations by isolating them early in development. These cells, called the germ line, then follow a different developmental path, and typically have a low rate of cell division.

But plants do not have a dedicated germ line: the cluster of stem cells that gives rise to the