loop. "Young people are getting so much attention that it draws more young people into the movement," she says.

Thunberg, now 16, was inspired to start her weekly climate strikes by students in Parkland, Florida, who organized a national school walkout in 2018 to fight for stricter gun laws after a mass shooting at their high school left 17 people dead. Earlier this month she made headlines worldwide when she sailed to New York City in a solar-powered yacht to attend the United Nations climate summit. "It feels like we are at a breaking point," she said.

Thunberg and other young climate campaigners aren't conventional, tree-hugging environmentalists, says Harriet Thew, an environmental social scientist at the University of Leeds, UK. Many see tackling climate change as a matter of global justice — a framing that Thew says is more effective than a purely environmental message.

"More and more, they are talking about the problems for people and really recognizing that human–environment connection," she says. Their message isn't about saving the rainforest or saving whales; it is about saving the most vulnerable people on Earth.

A MOVEMENT COMES OF AGE

Oladosu Adenike, a 25-year-old protester in Abuja, Nigeria, says that she can already see the effects of global warming. "Internally displaced peoples, farmer–herdsmen clashes, insecurity — all driven by climate change," she says. "Also the increase in food price, floods sweeping away farmers' land, droughts affecting the yield of crops, and excessive rainfall."

Then there is 22-year-old Vanessa Nakate, who spends 66 hours a week selling solar batteries in her father's shop in Kampala, Uganda. She worries about the effects of climate change on the rain-fed agriculture that supports most Ugandans. Although Nakate often protests alone, social media connects her to activists around the world and amplifies their common message. "The older generation messed things up," she says. "We are doing the clean up."

Adults are listening. Media around the world covered Thunberg's journey across the Atlantic. And UN Secretary General António Guterres has endorsed the school strikes, saying: "My generation has failed to respond properly to the dramatic challenge of climate change. This is deeply felt by young people. No wonder they are angry."

Connie Roser-Renouf, a climate-communication researcher at George Mason University in Fairfax, Virginia, says that data from a long-running survey of US adults conducted nearly every year since 2008 reveal an audience that has grown more receptive to the strikers' message. "The adult population has been getting increasingly concerned, and that has been trending since 2015," she says.

Some of their concern is related to natural disasters thought to be exacerbated by climate change — such as the record-breaking forest fires in the western United States last year, and Hurricane Maria, which slammed into Puerto Rico in September 2017.

But Roser-Renouf says that about one-quarter of the adults in the 2018 survey said that the most important reason to act on climate change was "to provide a better life for our children and grandchildren".

Research has revealed a similar pattern in other countries, says Christopher Shaw, a communications specialist at Climate Outreach in Oxford, UK. "We find again and again that it is the impacts on children and grandchildren that are of great concern," he says.

A 2016 survey of 1,860 people in the United Kingdom found that 61% were willing to pay up to £20 (US$25) a month to prevent climate-change related deaths in 2050, 2080 and 2115 (H. Graham *et al. Public Health* **174**, 110–117; 2019). And participants in a 2017 study conducted in Lisbon and in Adelaide, Australia, were willing to spend just as much money to prevent negative climate impacts on future generations as they were to protect themselves (L. Everuss *et al. J. Sociol.* **53**, 334–350; 2017).

But adults don't just see teens and young adults as victims who need to be protected from climate change. Thew's research on the role of youth participants (those aged 16 to 24 years) at UN climate negotiations has revealed that adults perceive these activists as having greater moral integrity than others attending the talks — "because they are not being paid to be there", she says.

SPEAKING TRUTH TO POWER

Because young climate protesters don't represent someone else's agenda, their message is strikingly direct and unvarnished. "They can say a lot of things that older activists can't say," says Matthew Nisbet, who studies environmental communication at Northeastern University in Boston, Massachusetts. "They don't have careers yet. They don't have filters that adults might have."

He points to videos online of teen climate protesters confronting members of the US Congress or otherwise taking adults to task. "Maybe you are simply not mature enough to tell it like it is," Thunberg says to the French National Assembly in Paris, in a video with 3.7 million views on Facebook. "Even that burden you leave to us children."

"They are being viewed millions of times and then they end up being embedded in news stories," says Nisbet. "It is drama, it is novelty, it is authenticity, and it is catastrophe."

Still to be seen is whether the movement's participants maintain their enthusiasm as they grow older. The demands of finding employment in a difficult global economy might leave less time for activism, Shaw says. Teens have more support and time to protest. "Your dinner is still on the table at home," he says.

But when the current youth leaders grow up, a new cohort of climate campaigners might be ready to rise. Some of today's activists are as young as 11. ■

ACTIVISM

Scientists join climate strikes

Biggest-ever rally against global warming drew millions of protesters worldwide.

BY QUIRIN SCHIERMEIER, KATE ATKINSON, EMILIANO RODRÍGUEZ MEGA, T. V. PADMA, EMMA STOYE, JEFF TOLLEFSON & ALEXANDRA WITZE

Scientists around the world joined the millions of people who walked out of workplaces on 20 September to urge stronger action on climate change. The event, inspired by Swedish activist Greta Thunberg who began a 'school strike for climate' one year ago, took place as government and business leaders arrived in New York City for the United Nations Climate Summit this week.

Nature spoke with striking scientists worldwide about their motives and expectations.

MEXICO CITY

Instead of carrying a sign, like most climate strikers in Mexico City, Ana Wegier was holding her three-year-old son. "I believe it's super important for him to grow up participating in these events," she says. As a population geneticist at the Botanical Garden of the National Autonomous University of Mexico in Mexico City, Wegier is most worried about the "silent" consequences of a warmer planet. These include a reduction in the genetic diversity of crops and plants on which millions of people depend. "What we're losing is the opportunity to survive many of the changes to come," she says.

ALLISON JOYCE/GETTY

Protesters during a climate strike rally on 20 September in Dhaka, Bangladesh.

DENVER, COLORADO

In Denver, Colorado, climate strikers turned out under sunny skies to march from the city's main train station to the state capitol building.

Kirsten Blagg, a graduate student in physics at the Colorado School of Mines in nearby Golden came to her first climate march to support the students who have been organizing the global strikes, and to help send a message to politicians that many people care about climate change. "It's pretty frustrating when scientists with real knowledge don't get listened to," she said. "I just wanted to put another body on the street."

Rhea Esposito, an ecologist at the National Ecological Observatory Network in Boulder, also said she was marching to keep public and political attention on the issue. "The climate crisis is the number-one issue that we are facing as a species."

NEW YORK CITY

Climate activists filled downtown New York City as they marched to the tip of Manhattan island, where Thunberg was set to speak.

Corey Lesk, a climate scientist studying for a doctoral degree, joined other protesters from Columbia University's Lamont-Doherty Earth Observatory in Palisades, New York.

Lesk says the world should have acted aggressively on climate change decades ago, and he is sceptical that the global climate rallies will change the political dynamic. That's one reason he decided to study climate adaptation, focusing on the future of food and agriculture. Nonetheless, Lesk helped to organize Lamont's contingent and came with three signs. "Keep it in the ground," one read. "That's the safest place for carbon," Lesk says.

LONDON

Thousands of protesters descended on Westminster to demand action on climate change. Chants of "What do we want? Climate justice! When do we want it? Now!" rang out as people navigated the packed streets.

"I'm striking for the same reason that I research climate change," says Neil Grant, a PhD student at the Grantham Institute for Climate Change and the Environment at Imperial College London. "It is a huge societal problem we need to face. My research is aimed at helping to find solutions. But I can't just engage with climate change intellectually, I need to engage practically." ■

POLAR RESEARCH

Epic Arctic mission will lock research ship in ice

Year-long voyage will give scientists detailed look at the changes gripping the polar north.

BY QUIRIN SCHIERMEIER

Warming temperatures are changing the Arctic in unprecedented ways — but for the next 12 months, there will be a regular fixture on the polar horizon.

In an extraordinary expedition that set off on 20 September, scientists will freeze Germany's biggest research vessel, *Polarstern*, into Arctic sea ice, where it will stay trapped for the next year. The ship will host a rotating crew of some 300 scientists from 17 countries and serve as a drifting polar-research laboratory — one that will give researchers their closest-ever look at how the polar climate, and its fragile ecosystems, are changing.

The €140-million (US$154-million) research project, called MOSAiC (Multidisciplinary Drifting Observatory for the Study of Arctic Climate), is one of the biggest research missions ever to go to the Arctic and has been years in the planning. Led by the Alfred Wegener Institute (AWI) for Polar and Marine Research in Bremerhaven, Germany, the expedition commemorates Norwegian polar explorer Fridtjof Nansen's legendary but ill-fated attempt in 1893 to reach the North Pole in a three-masted wooden schooner trapped in drifting sea ice. But unlike Nansen and his men, whose strenuous journey on the *Fram* lasted three years, the MOSAiC team will rely on a superbly equipped research ship and on logistical support by Russian, Swedish and Chinese icebreakers.

After a first leg in which *Polarstern* will sail polewards in the open ocean, the vessel will freeze into the sea ice at a latitude of about 85 degrees north, probably in October. The team will then set up a network of camps on the thick ice surrounding the ship. Nearby research stations will be accessible at any time. Those farther away — up to 50 kilometres — will be served by helicopters that will transport crew and equipment. Where *Polarstern* will end up in 12 months' time is uncertain. Statistical calculations of sea-ice drift suggest possible end points near the North Pole or in the Fram Strait between Greenland and Svalbard. "We will go and do science wherever the ice might carry us," says chief scientist Markus Rex, an atmospheric scientist at the AWI.

One major goal of MOSAiC, says Rex, ▶