New Scientist

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reduce their greenhouse gas emissions by 2035 under the Paris Agreement. "This, therefore, is a pivotal moment for the global community," she says. "This parliament will be crucial not only to ensure delivery in the UK, but also to raise ambition globally."

Climate pledges

So, will any party deliver the scale of action needed to put the UK back on track? All the major parties agree on the need to reach net zero by mid-century. And there is strong agreement between Labour and the Conservatives on the need for more renewable power, particularly offshore wind.

Labour, however, has the eye-catching promise to deliver a fully decarbonised grid by 2030. Adam Bell at UK consultancy Stonehaven, and a former senior energy official in the UK government, says this goal is "very, very ambitious", and will push the civil service to the limits. "On power, it's difficult to find a way in which [Labour] could possibly be more ambitious."

But for Eyre, a manifesto that is credible on climate should also have ambitious aims in areas where the UK is seriously off track: on home energy efficiency, heat pump deployment, industrial emissions, land use, solar power and electric vans. "We need to do all of them," he says.

Privately, many experts doubt that any of the major parties have a policy programme with the pace and scale needed to deliver net zero by 2050. In its absence, looking for enthusiasm for the challenge ahead might be the next best sign of a party's credibility. "If you don't have a positive vision yourself," says Eyre, "you can't sell that to the rest of the population." ▮

Health

Astronaut medical records reveal the toll of space travel

Clare Wilson

MORE light could be shed on how space flight affects astronauts' health after the creation of the first "space-omics" biobank – a collection of thousands of blood and tissue samples, plus medical information, taken over multiple missions.

These include trips to the International Space Station, as well as the first all-civilian space flight, SpaceX's Inspiration4, which took four non-government-trained astronauts into orbit for three days in 2021.

Called the Space Omics and Medical Atlas (SOMA), the resource contains detailed medical data, such as on DNA damage and changes in people's gene activity and immune system functioning, collectively known as biomarkers.

Space flight is known to pose certain health risks. For instance, astronauts lose bone density and muscle mass due to the lack of gravity, and higher levels of radiation in space seem to cause cell and DNA damage, which have a range of impacts on the body.

These effects may be why astronauts are more prone to developing heart disease in later life and some have experienced worsening vision after being in space.

Collecting astronauts' medical data in a consistent way via the SOMA biobank will help researchers understand more about these changes and potentially develop ways to mitigate them, says Christopher Mason at Weill Cornell Medicine in New York, who helped put the biobank together.

"Biomarkers don't always translate into anything that's clinically meaningful, but it's a nice way to start to understand how this unique environment is impacting us," says Damian Bailey at the University of South Wales in the UK, who wasn't involved in the work.

One insight from the Inspiration4 mission is that, despite the astronauts experiencing a host of biomarker changes, most measurements returned to normal within a few months of them coming back to Earth (*Nature*, doi.org/m3t4).

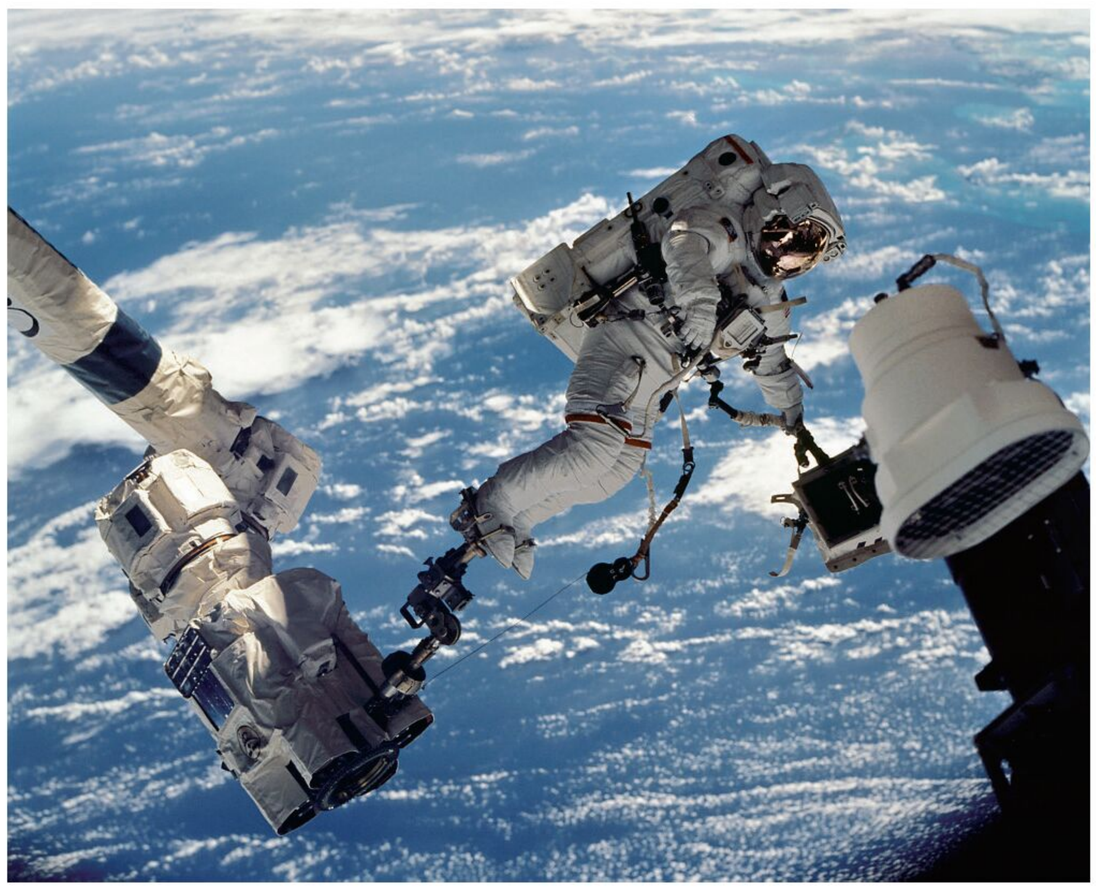
This suggests that sending civilians into space doesn't pose more health risks than sending professional astronauts, says Mason. "Instead of people training for decades to go, we could start to really open up space towards more and more people."

The results from Inspiration4, which was crewed by two men and two women, also suggest that the changes in gene activity returned to normal faster in the women. That may be because their bodies have to be able to cope with a potential pregnancy, says Mason. "Being able to tolerate large changes in physiology and fluid dynamics may be great for being able to manage pregnancy, but also manage the stress of space flight," he says.

"Most biomarkers returned to normal a few months after astronauts came back to Earth"

Timothy Etheridge at the University of Exeter in the UK says it will be helpful for researchers around the world to have a common resource they can use. "You need to have a consistent approach to collecting samples," he says.

Thomas Smith at King's College London says understanding the health impacts of space flight will become more important if longer missions happen, such as journeys to Mars. "Anything that leads to extended-duration missions, it's more important to know what's going on and, ideally, address it," he says. ▮



Astronaut David Wolf at work outside the International Space Station

NASA