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Russian science lab launched to expand ISS

Jonathan O'Callaghan

RUSSIA has launched a new module for the International Space Station (ISS), after more than a decade of delays. The Nauka module blasted off from Baikonur Cosmodrome in Kazakhstan on top of a Proton-M rocket on 21 July, along with a robotic arm for the station made by the European Space Agency.

The ISS is composed of modules and equipment from different space agencies, including Europe, Japan and Canada. The bulk of the station is composed of two main sections, a Russian segment and a US segment. At 13 metres long and weighing more than 20 tonnes, Nauka, also called the Multipurpose Laboratory Module, will be among the largest parts in Russia's half.

Nauka had a problem with its propulsion system shortly after launch, but mission controllers were able to solve the problem. As *New Scientist* went to press, the module was expected to reach the ISS on 29 July.

Once attached, Nauka will act as a new hub for the Russian segment of the station. "It's a science laboratory, and it also provides a lot of important service systems," says Anatoly Zak, editor of the website RussianSpaceWeb.com. Planned research includes biological and materials science experiments. "It's a step in making the Russian segment more independent [from the US segment]," says Zak. This includes a new toilet and sleeping compartments.

The launch of Nauka has been a long time coming, with construction of the module beginning in the 1990s. Issues

since then, such as the loss of components from Ukraine following Russia's annexation of Crimea in 2014, have seen development slow. "It's much more complex than anything the Russian space programme has tried to build in the last few years," says Zak. Russia's last module – Rassvet – was carried to the ISS by a US space shuttle in 2010.

"It's much more complex than anything Russia has tried to build in the last few years"

Nauka's launch also comes at a time when Russia's future on the ISS is in doubt. Earlier this year, the head of the Russian space agency, Dmitry Rogozin, said Russia would leave the ISS by 2025 if sanctions against the country weren't lifted by the US. "Either we work together, in which case the sanctions are lifted immediately, or we will not work together and we will deploy our own station," he said. A long-touted idea is that Russia would detach its segment of the ISS to begin its own separate space station in orbit.

Jared Zambrano-Stout, a former chief of staff for the National Space Council in the US, says he thinks such a scenario is unlikely. "The logistics associated with separating the modules is a lot more challenging than is being publicly discussed," he says. "If they were planning to do that they should be building more modules now, because they're going to need additional things up there to support a separate station." Russia's segment still relies on electrical power from the US segment, for example.

NASA has made it clear that it hopes to continue operating the ISS until 2030, by which time much of the station is expected to be too old to continue. NASA is in the process of developing a replacement space station, the Lunar Gateway, that would be positioned near the moon and support missions to the lunar surface, a venture Russia has yet to express an interest in joining.

"Low Earth orbit will be the only destination for their cosmonauts if they do not cooperate with NASA, for the foreseeable future at least," says Zak. ■



The Nauka module being prepared for launch to the International Space Station

Dogs will ignore you if they know you are lying, unlike children

Christa Lesté-Lasserre

DOGS tend to ignore suggestions from people who are lying, hinting that – unlike young children – they might recognise when a person is being deceptive.

Ludwig Huber at the University of Vienna in Austria and his colleagues trained 260 dogs to find hidden food in one of two covered bowls. The dogs learned to follow the suggestion of a "communicator", who would touch the food-filled bowl, glance at the dog, and say, "Look, this is very good!"

Once trust was established, the team had the dogs witness another person move the food from the first to the second bowl, while the communicator was either present in the room to witness the switch, or absent. The communicators would later recommend the first bowl – which was now empty.

Roughly half of the dogs followed the communicator's misleading advice and explored the empty bowl if the communicator hadn't witnessed the food switch. But about two-thirds of dogs ignored a communicator who had witnessed the food switch and then lied by recommending the now-empty bowl (*Proceedings of the Royal Society B*, doi.org/gpff).

Children under age 5 are more trusting. In similar experiments run in the past, they were more likely to follow the "lying" communicator's suggestion to approach the empty container – perhaps because they trusted the communicator over the evidence of their own eyes, says Huber.

"We thought dogs would behave like children under age 5, but now we speculate that perhaps dogs can understand when someone is being deceitful," he says.

"This study reminds us that dogs are watching us closely, are picking up on our social signals," says Monique Udell at Oregon State University. ■