

New Scientist

WEEKLY September 19–25, 2020

EVIDENCE FOR ALIEN LIFE?

'It's basically either not a big deal, or we just found Venusians and that's incredible'

An extraordinary discovery in the atmosphere of Venus

CORONAVIRUS SPECIAL

ONE MILLION DEATHS

As the world approaches a grim milestone

THE DATA

Can we trust the numbers?

THE VIRUS

How is it mutating?

THE FUTURE

Will a vaccine solve everything?



**PLUS FIRE IN ZERO GRAVITY / VERY COLD HUMMINGBIRDS /
YOUR UNIQUE GAIT / BEST PET FOR AUTISTIC CHILDREN**

Science and technology news www.newscientist.com US jobs in science

No 3300
US\$6.99
CAN\$7.99



Out-of-this-world advertising

NASA is trying to turn the ageing International Space Station into a hub for commerce. Are cosmetics commercials the best use of an orbiting outpost, asks **Mark Harris**

LAST year, NASA declared the International Space Station open for business. Although firms could already do research on the ISS under contract with NASA, the agency hoped to stimulate pure commerce, including the manufacture of biotech and the development of on-orbit industries that could support NASA's deep space exploration goals – not to mention bringing in some cash.

Instead, it got beauty product marketing with Estée Lauder, sports shoe design with Adidas and the transport of space tourism trinkets.

Space Act Agreements between the agency and various companies show that some of the first purely commercial activities that NASA astronauts will participate in have little to do with advancing science or enabling future space missions. They are also effectively being heavily subsidised by the agency, which is charging below-cost cargo fees to the firms involved.

Space souvenirs

In November, a SpaceX resupply mission to the ISS is scheduled to carry essential supplies, a new airlock and a bag of commemorative items supplied by French company Toucan Space. Consumers can already pre-order a "Flown to the ISS" sticker for €199, a bookmark for €299 or a postcard featuring a classic NASA photo for €499.

The enterprise has been organised through a US start-up called Techshot. "Demonstrating the business viability of selling space-flown items will support development of a sustainable LEO [low Earth orbit] economy," reads NASA's agreement with the firm. "Techshot's proposal to fly these items will provide a



SHUTTERSTOCK/NASA

pilot demonstration to markets to stimulate further business interest... and eventually achieve reinvestment of profits into further commercial LEO ventures and infrastructure."

Meanwhile, Alpha Space, a Texas-based firm with a testing facility permanently installed to the outside of the ISS, has signed an agreement with NASA to repurpose some of its scientific cargo capacity for "luxury goods and memorabilia" flown to space.

Techshot and Alpha Space will each pay NASA \$10,116 for every kilogram of items carried to and from the space station. This represents a significant discount on the agency's actual costs. According to a 2018 analysis of transport costs to the ISS, NASA is paying more than \$70,000 to ship each kilogram of supplies to the station. Neither agreement requires the companies to reinvest

NASA's funding for the International Space Station is due to end in 2024

profits in future space activities or with NASA itself.

A NASA spokesperson told *New Scientist* it developed its pricing policy to stimulate demand and that the price covers only some of its costs. "[The agency] will periodically reassess the pricing policy with the goal to eventually move to full cost," they said.

"We need to kick-start this new way of working with NASA," says Rich Boling at Techshot. "If there is a terrific demand, perhaps the number should be increased to fully recoup costs."

Toucan Space's and Alpha Space's objects are likely to remain in cargo bags within the SpaceX spacecraft until they return to Earth, but that isn't the case for NASA's first purely commercial project, which is due to go up on a Northrop Grumman resupply mission at the end of this month.

\$10k

Cost per kilogram NASA is charging for sending commercial cargo to the ISS

Boston-based company Space Commerce Matters (SCM) has signed an agreement with NASA to send up to 10 bottles of a “newly formulated” Estée Lauder product to the ISS as part of a maximum 5-kilogram payload. Under the deal, NASA astronauts will spend over 4 hours producing video and other imagery of the bottles. In all, SCM will pay NASA \$128,000, which includes astronaut time at around \$17,500 per hour.

Neither SCM nor Estée Lauder replied to requests for comment. However, in an online panel discussion in August, Stéphane

If the circus is necessary to maintain the International Space Station, it's probably a good trade-off"

de La Faverie, group president of Estée Lauder, revealed that the bottles were a new formulation of its Advanced Night Repair skin serum. “We’re constantly pushing the boundaries of how to showcase our products,” he said.

The right sniff

ISS residents might appreciate the arrival of fragrant products. In an interview with *Wired* in 2017, astronaut Scott Kelly likened the space station’s aroma to that of a jail, a “combination of antiseptic, garbage, and body odor”.

However, former astronaut Tim Kopra, who flew on two ISS missions, says most perfumes and lotions are forbidden on board. “We have very select personal hygiene products that have been tested and approved to ensure they don’t mess up our hardware,” he says. For example, anything containing alcohol is banned as it can foul up the air filtration equipment. NASA confirmed that the Estée Lauder

product won’t be used on the ISS.

Adidas is also exploring the possibility of getting its products into orbit, having signed an agreement with NASA to collaborate on technologies to help astronauts train for space and on developing more sustainable footwear. Part of that effort could include testing materials, clothing and shoes on the ISS, the deal says.

NASA has long had strict rules about not endorsing specific products or services, and recently added new guidelines for the ISS. Commercials made there cannot depict NASA astronauts or mention that they or the agency helped with filming.

But any time that NASA crew spend on commercial activities could detract from their other duties. “We have a prescribed number of hours that we work on science every day,” says Kopra, who now works for Canadian company MDA, which made robotic arms for the space shuttle and the ISS. Astronauts also maintain the space station and exercise every day to preserve bone density and muscle mass, he says. “It’s a pretty jam-packed time frame.”

Selling in orbit

While an Estée Lauder video will be the first advert US astronauts have shot in space, NASA has dallied with product promotion in the past. In 1985, both Coca-Cola and Pepsi shipped modified drink cans on the same space shuttle flight to see if their fizzy drinks could be dispensed in microgravity without causing a mess. Neither product made it into NASA’s regular food pantry.

Other countries have looser rules around commercial activity



products, alongside 90 hours of crew time, each year.

“Undoubtedly, [a beauty product video] gets in the way of real science,” says Todd Humphreys at the University of Texas at Austin, who had an experiment installed on the ISS in 2017. “But if the circus is necessary to maintain the station, and serious lab work can still be done when the cameras aren’t rolling, it’s probably a good trade-off.”

Time for science is likely to become even more limited once private individuals begin flying to the ISS, replacing NASA astronauts on crewed flights. NASA is already working on a feasibility assessment for private missions with Virgin Galactic astronauts. Actor Tom Cruise is even due to film scenes for a movie there.

The clock is also ticking on the space station itself, which is due to lose official NASA support in 2024. “The ISS could be a stepping stone to what may be possible on the moon,” says Saadia Pekkanen at the Space Policy and Research Center at the University of Washington, Seattle. “We have to start changing our ideas and build some sort of a commercial platform.”

For its part, Estée Lauder has indicated it is interested in more than just an orbital photo shoot. The company has committed to sponsoring research into producing sustainable alternatives to plastic in microgravity. “Our mission is to make every woman beautiful, but if we can also make the world a better place [that would be] critical,” said de La Faverie during the online panel.

“The ISS has been a huge boon to science over its lifetime,” says Humphreys. “I much prefer the prospect of a commercial ISS than no ISS at all after 2024, or one controlled only by international partners.” ■

in space. Canadian astronaut Chris Hadfield recorded a cover version of David Bowie’s Space Oddity while on the International Space Station in 2013 that later ended up on an album on Earth.

Russian cosmonauts have also embraced extraterrestrial advertising. They first filmed an advert for milk on board the Mir space station in 1997, and have since marketed cup noodles, golf clubs, Radio Shack and Pizza Hut from the ISS.