CPGE 2023-2024

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‘It only makes the news when the toilets stop working’: has the 25-year-old International Space Station been a waste of space?

Robin McKie, 29 October 2023

The International Space Station is about to pass a remarkable milestone. In November, the giant spacecraft will have been in orbit around our planet for a quarter of a century. For the past 25 years, hundreds of astronauts have made temporary homes there while other visitors have included frogs, or worms: each has been the subject of experiments aimed at uncovering the effects of weightlessness, radiation and other extraterrestrial phenomena on living creatures.

Yet the days of this 100-metre-long behemoth – which began on 20 November 1998 when its first segment was blasted into orbit – are now numbered. The station has already been operating for a decade longer than planned, and it is suffering more and more from air leaks, thruster failures and other mishaps that are intensified as it is heated and cooled 16 times a day while sweeping round the Earth at 17,500mph. Vibrations from spaceship dockings and crew movements are only adding to these woes, as well as its ageing – near obsolete – equipment.

As a result, Nasa has decreed that the ISS will be terminated and sent spiralling into the Pacific Ocean in 2031. The space agency insists the risks posed to humans by the 400-tonne craft striking our planet will be minimal. “Once the debris enters the ocean, it would be expected to settle to the ocean floor,” it says. “No substantial long-term impacts would be expected.”

The forthcoming destruction of the International Space Station raises key questions. Was it worth £120bn to build and operate? What have we have learned over the past 25 years that justifies this incredible outlay?

The first question is the most controversial. Many scientists point out that the ISS has provided invaluable insights on how to live and work in zero gravity, knowledge that will be crucial as humanity prepares to return to the moon and head off on long-duration trips to Mars and beyond. Thanks to the space station, we have learned that humans can make homes in outer space. Others disagree. They argue that the money spent on the ISS would have been better invested in different projects, notably a particle accelerator. “The only real technology that the space station has produced concerns the technology of keeping humans alive in space – which is a senseless and circular process if you realise there is no point in having humans in space,” physicist Weinberg argued. This point is backed by the UK Astronomer, Martin Rees. “Robots get cleverer and more sophisticated. They can assemble large structures in space and are much, much cheaper. We don’t need humans to do research in space.”

Space stations are not about to disappear from the night sky, however. The ISS may be destined for termination in a few years, but the US, Europe, Japan, Canada and India have all revealed plans to launch new orbiting laboratories, while China has already constructed its own permanently crewed station, Tiangong. (482 words)