

Space station marking 20 years of people living in orbit

November 1 2020, by Marcia Dunn



In this Oct. 29, 2000, file photo, the Soyuz booster is transported to the launch pad at the Baikonur Cosmodrome in Kazakstan. Two days later, U.S. astronaut Bill Shepherd, and Russian cosmonauts Sergei Krikalyov and Yuri Gidzenko blasted off to become the first residents on the International Space Station. (AP Photo/Mikhail Metzel, File)

The International Space Station was a cramped, humid, puny three rooms when the first crew moved in. Twenty years and 241 visitors later, the complex has a lookout tower, three toilets, six sleeping compartments and 12 rooms, depending on how you count.

Monday marks two decades of a steady stream of people living there.

Astronauts from 19 countries have floated through the space station hatches, including many repeat visitors who arrived on shuttles for short-term construction work, and several tourists who paid their own way.

The first crew—American Bill Shepherd and Russians Sergei Krikalev and Yuri Gidzenko—blasted off from Kazakhstan on Oct. 31, 2000. Two days later, they swung open the space station doors, clasping their hands in unity.

Shepherd, a former Navy SEAL who served as the station commander, likened it to living on a ship at sea. The three spent most of their time coaxing equipment to work; balky systems made the place too warm. Conditions were primitive, compared with now.

Installations and repairs took hours at the new space station, versus minutes on the ground, Krikalev recalled.

"Each day seemed to have its own set of challenges," Shepherd said during a recent NASA panel discussion with his crewmates.

The space station has since morphed into a complex that's almost as long as a football field, with eight miles (13 kilometers) of electrical wiring, an acre of solar panels and three high-tech labs.



In this photo provided by NASA, the Expedition 1 crew members pose with fresh oranges onboard the Zvezda Service Module of the Earth-orbiting International Space Station on Dec. 4, 2000. Pictured, from left, are cosmonaut Yuri P. Gidzenko, Soyuz commander; astronaut Bill Shepherd, mission commander; and cosmonaut Sergei K. Krikalev, flight engineer. (NASA via AP)

"It's 500 tons of stuff zooming around in space, most of which never touched each other until it got up there and bolted up," Shepherd told The Associated Press. "And it's all run for 20 years with almost no big problems."

"It's a real testament to what can be done in these kinds of programs," he said.

Shepherd, 71, is long retired from NASA and lives in Virginia Beach, Virginia. Krikalev, 62, and Gidzenko, 58, have risen in the Russian space ranks. Both were involved in the mid-October launch of the 64th crew.

The first thing the three did once arriving at the darkened space station on Nov. 2, 2000, was turn on the lights, which Krikalev recalled as "very memorable." Then they heated water for hot drinks and activated the lone toilet.

"Now we can live," Gidzenko remembers Shepherd saying. "We have lights, we have hot water and we have toilet."



In this Oct. 31, 2000, file image from video provided by NASA, a cloud of smoke surrounds the Soyuz rocket seconds before liftoff from the Baikonur Cosmodrome in Kazakstan, carrying the first residents of the International Space Station. Two days later, U.S. astronaut Bill Shepherd, and Russian cosmonauts Sergei Krikalev, and Yuri Gidzenko arrived at the space station. (NASA via AP, File)

The crew called their new home Alpha, but the name didn't stick.

Although pioneering the way, the three had no close calls during their nearly five months up there, Shepherd said, and so far the station has held up relatively well.

NASA's top concern nowadays is the growing threat from space junk. This year, the orbiting lab has had to dodge debris three times.

As for station amenities, astronauts now have near-continuous communication with flight controllers and even an internet phone for personal use. The first crew had sporadic radio contact with the ground; communication blackouts could last hours.

While the three astronauts got along fine, tension sometimes bubbled up between them and the two Mission Controls, in Houston and outside Moscow. Shepherd got so frustrated with the "conflicting marching orders" that he insisted they come up with a single plan.



In this Oct. 31, 2000, photo provided by NASA, Expedition 1 crew members, from top, Sergei K. Krikalev, Bill Shepherd and Yuri P. Gidzenko pose for final photos prior to their launch aboard a Soyuz rocket to the International Space Station from the Baikonur Cosmodrome in Kazakhstan. Two days later, they swung open the space station doors, clasping their hands in unity. Thus began 20 years of international cooperation and a steady stream of crew from around the world. (NASA via AP)

"I've got to say, that was my happiest day in space," he said during the panel discussion.

With its first piece launched in 1998, the International Space Station already has logged 22 years in orbit. NASA and its partners contend it easily has several years of usefulness left 260 miles (400 kilometers) up.

The Mir station—home to Krikalev and Gidzenko in the late 1980s and 1990s—operated for 15 years before being guided to a fiery reentry over the Pacific in 2001. Russia's earlier stations and America's 1970s Skylab had much shorter life spans, as did China's much more recent orbital outposts.

Astronauts spend most of their six-month stints these days keeping the space station running and performing science experiments. A few have even spent close to a year up there on a single flight, serving as medical guinea pigs. Shepherd and his crew, by contrast, barely had time for a handful of experiments.



This photo provided by NASA shows a Progress supply ship that arrived on Nov. 18, 2000 to link up to the International Space Station, bringing Expedition 1 commander Bill Shepherd, pilot Yuri P. Gidzenko and flight engineer Sergei K. Krikalev two tons of food, clothing, hardware and holiday gifts from their families. (NASA via AP)

The first couple weeks were so hectic—"just working and working and working," according to Gidzenko—that they didn't shave for days. It took awhile just to find the razors.

Even back then, the crew's favorite pastime was gazing down at Earth. It takes a mere 90 minutes for the station to circle the world, allowing astronauts to soak in a staggering 16 sunrises and 16 sunsets each day.

The current residents—one American and two Russians, just like the original crew—plan to celebrate Monday's milestone by sharing a special dinner, enjoying the views of Earth and remembering all the crews who came before them, especially the first.

But it won't be a day off: "Probably we'll be celebrating this day by hard work," Sergei Kud-Sverchkov said Friday from orbit.

One of the best outcomes of 20 years of continuous space habitation, according to Shepherd, is astronaut diversity.



In this photo provided by NASA, Expedition 1 flight engineer Sergei K. Krikalev works in the Zvezda Service Module, with his feet anchored in a tunnel hatchway, aboard the International Space Station on Dec. 6, 2000. The space station was cramped and humid with just three rooms when the first crew moved

in. Conditions were primitive, compared with now, and the three spent most of their time coaxing equipment to work. In the past twenty years, the space station has morphed into a complex that's almost as long as a football field, with eight miles (13 kilometers) of electrical wiring and three high-tech labs. (NASA via AP)

While men still lead the pack, more crews include women. Two U.S. women have served as space station skipper. Commanders typically are American or Russian, but have also come from Belgium, Germany, Italy, Canada and Japan. While African-Americans have made short visits to the space station, the first Black resident is due to arrive in mid-November on SpaceX's second astronaut flight.

Massive undertakings like human Mars trips can benefit from the past two decades of international experience and cooperation, Shepherd said.

"If you look at the [space](#) station program today, it's a blueprint on how to do it. All those questions about how this should be organized and what it's going to look like, the big questions are already behind us," he told the AP.

Russia, for instance, kept station crews coming and going after NASA's Columbia disaster in 2003 and after the shuttles retired in 2011.



In this photo provided by NASA, Expedition 1 mission commander Bill Shepherd works in a docking compartment aboard the International Space Station on Dec. 5, 2000. The International Space Station was a cramped, humid, puny three rooms when the first crew moved in. Twenty years and 241 residents later, the complex has a domed lookout, three toilets, six sleeping compartments and 10 rooms, depending on how you count. (NASA via AP)



This photo provided by NASA shows the new International Space Station after the crew of the Space Shuttle Endeavour captured the Zarya Control Module, left, and mated it with the Unity Node, right, inside the Shuttle's payload bay. This photo was taken after Endeavour undocked from the space station on Dec. 13, 1998, for the return to Earth. Almost two years later, the first crew—American Bill Shepherd and Russians Sergei Krikalev and Yuri Gidzenko—blasted off from Kazakhstan on Oct. 31, 2000, en route to the space station. Thus began 20 years of international cooperation and a steady stream of crew from around the world. (NASA via AP)

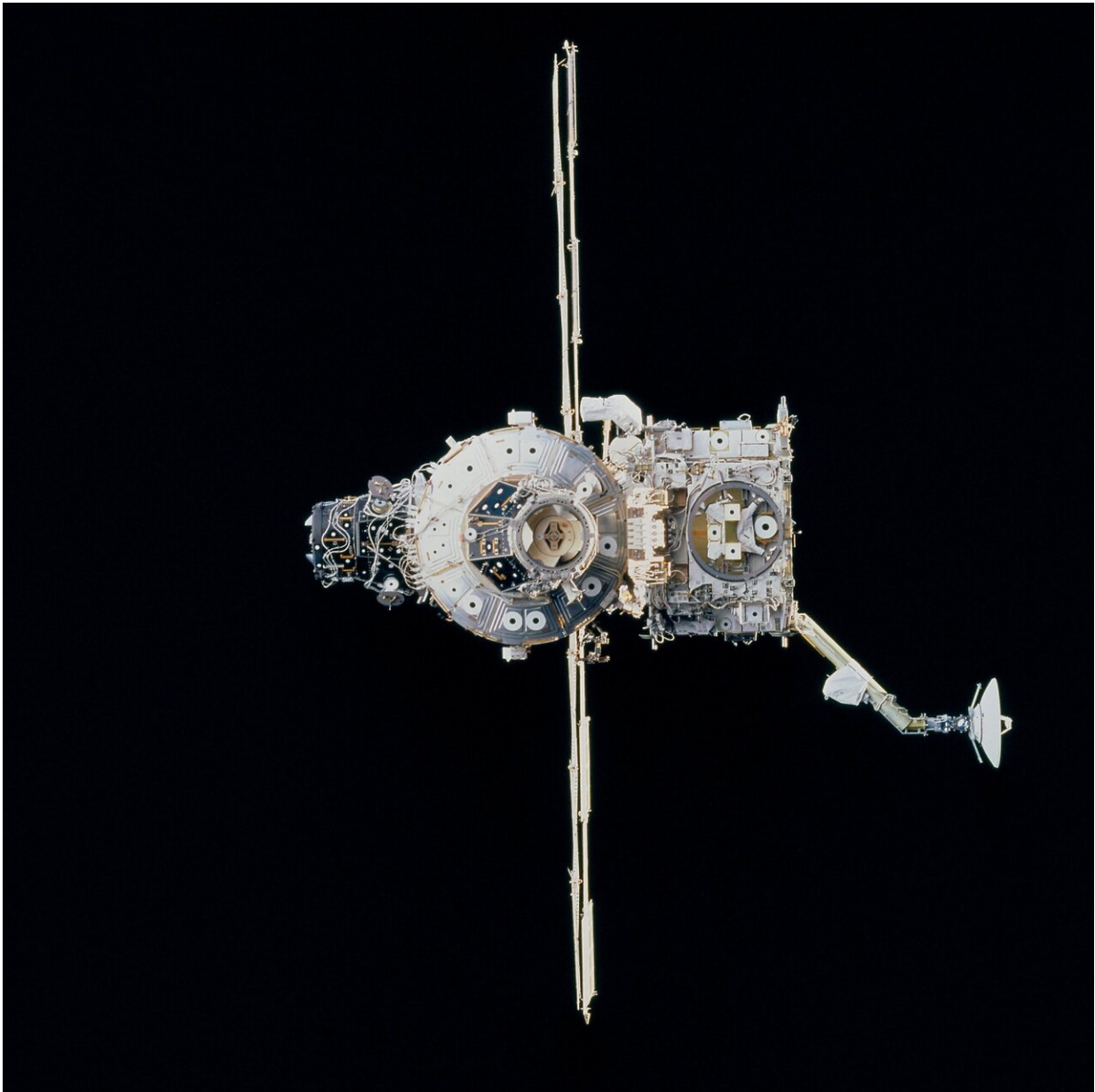


In this photo provided by NASA, Expedition 1 crew members Sergei Krikalev, left, and Yuri Gidzenko work in the Zvezda Service Module onboard the International Space Station on Nov. 8, 2000. The first crew, Russians Krikalev and Gidzenko along with American Bill Shepherd, spent most of their time coaxing equipment to work in the cramped and humid three-room space station. Twenty years and 241 residents later, the complex is almost as long as a football field, with six sleeping compartments, three toilets, a domed lookout and three high-tech labs. (NASA via AP)



This photo provided by NASA shows the International Space Station as seen from Space Shuttle Atlantis during mission STS-106, which delivered supplies and performed maintenance in September 2000. The first crew of the space station—American Bill Shepherd and Russians Sergei Krikalev and Yuri

Gidzenko—arrived less than two months later. Thus began 20 years of international cooperation and a steady stream of crew from around the world. (NASA via AP)



This Oct. 20, 2000 photo made available by NASA shows the International Space Station after separation of the Space Shuttle Discovery. Backdropped

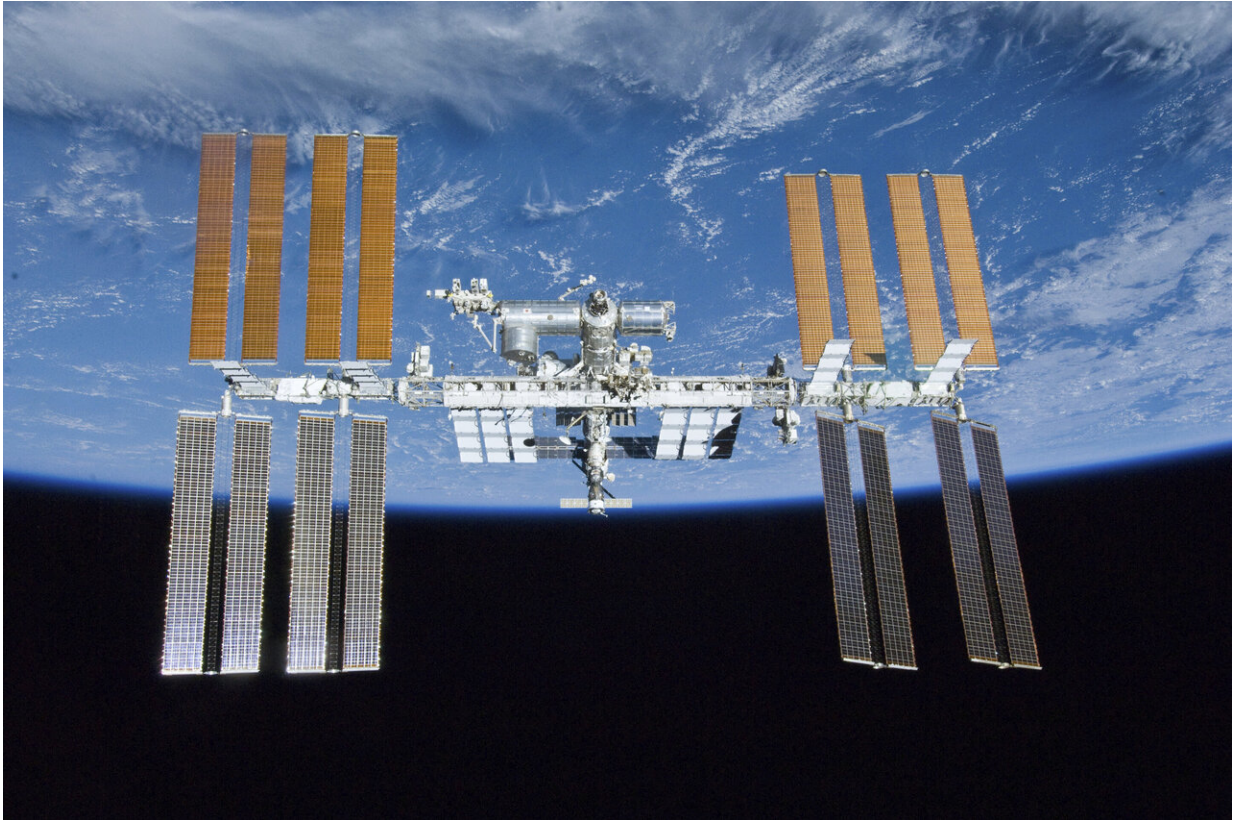
against the blackness of space, the Z1 Truss structure and its antenna, as well as the new pressurized mating adapter (PMA-3), are visible in the foreground. (NASA via AP)



In this photo provided by NASA, the International Space Station, backdropped against black space above Earth's horizon, is seen from the Space Shuttle Discovery on March 19, 2001, after a new crew comprised of cosmonaut Yury Usachev and astronauts James Voss and Susan Helms began several months aboard the station. In the early days of the station, it was a cramped and humid, with just three rooms. It's much larger now, with six sleeping compartments, three toilets, a domed lookout and three high-tech labs. (NASA via AP)



This photo provided by NASA shows the International Space Station as seen from Space Shuttle Endeavour as the two spacecraft begin their relative separation on Nov. 28, 2008. Twenty years after the first crew arrived at the space station, the spacecraft has hosted 241 residents and grown from three cramped and humid rooms to a complex almost as long as a football field, with six sleeping compartments, three toilets, a domed lookout and three high-tech labs. (NASA via AP)



This photo provided by NASA shows the International Space Station as seen from the Space Shuttle Atlantis after the station and shuttle began their post-undocking relative separation on May 23, 2010. Twenty years after the first crew arrived, the space station has hosted 241 residents and grown from three cramped and humid rooms to a complex almost as long as a football field, with six sleeping compartments, three toilets, a domed lookout and three high-tech labs. (NASA via AP)



In this photo provided by NASA, backdropped against clouds over Earth, the International Space Station is seen from Space Shuttle Discovery as the two orbital spacecraft accomplish their relative separation on March 7, 2011. From the first crew to the most recent, the No. 1 pastime aboard the station is gazing down at Earth. It takes just 90 minutes to circle the world, allowing crews to soak in a staggering 16 sunrises and 16 sunsets every day. (NASA via AP)



In this image provided by NASA, the International Space Station is seen from the Space Shuttle Endeavour on May 29, 2011, after the station and shuttle began their post-undocking relative separation. It takes just 90 minutes for the space station to circle the world, allowing crews to see 16 sunrises and 16 sunsets every day. (NASA via AP)



In this photo provided by NASA, the International Space Station is seen from the Space Shuttle Atlantis as the two spacecraft perform their relative separation on July 19, 2011. Above and to the right of the space station is the moon far in the distance. (NASA via AP)



In this photo provided by NASA/Roscosmos, the International Space Station floats above the Earth as seen from a Soyuz spacecraft after undocking on Oct. 4, 2018. NASA astronauts Andrew Feustel and Ricky Arnold and Roscosmos cosmonaut Oleg Artemyev executed a fly around of the orbiting laboratory to take pictures of the station before returning home after spending 197 days in space. Twenty years after the first crew arrived, the space station has hosted 241 residents. (NASA/Roscosmos via AP)



In this photo provided by NASA/Roscosmos, the International Space Station continues its orbit around the Earth as seen from a Soyuz spacecraft departing with NASA astronauts Andrew Feustel and Ricky Arnold and Roscosmos cosmonaut Oleg Artemyev, who had spent 197 days in space. From the first crew to the most recent, the No. 1 pastime aboard the station is gazing down at Earth. It takes just 90 minutes to circle the world, allowing crews to soak in a staggering 16 sunrises and 16 sunsets every day. (NASA/Roscosmos via AP)

When Shepherd and his crewmates returned to Earth aboard shuttle Discovery after nearly five months, his main objective had been accomplished.

"Our [crew](#) showed that we can work together," he said.

© 2020 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed without permission.

Citation: Space station marking 20 years of people living in orbit (2020, November 1) retrieved 26 April 2024 from <https://phys.org/news/2020-11-space-station-years-people-orbit.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.