

# Backup plan for the International Space Station

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The space shuttle flew to the International Space Station 37 times, but its retirement leaves NASA reliant on the Russian Soyuz for future trips, raising the question of what would happen if the Soyuz is grounded for an accident or another problem.

As it turns out, NASA does not have a formal contingency plan, said Michael Suffredini, NASA's program manager for the space station. But without hesitation, he rattled off a list of steps the agency could take.

"We would keep the crew on orbit for some months and likely extend that if we thought that was viable," Suffredini said. Crews normally stay six months.

If necessary, the [space station crew](#) could leave via the two docked Soyuz capsules, which can each carry three [astronauts](#).

The station can be operated by ground controllers, so long as critical parts - such as guidance gyroscopes - don't require human hands for repairs. It carries 6 metric tons of fuel, enough to keep it boosted to the proper orbit for 360 days. Russian progress cargo ships can replenish the fuel supply robotically.

An analysis after the Columbia shuttle accident showed that if the space station were unoccupied for more than six months, the chance of it leaving orbit and crashing into the atmosphere would increase tenfold, although that risk is still minimal, Suffredini said. "Most of our critical

systems have redundancy," he said.

Even that low risk is something to think about, given the station's importance and cost. The space station represents one of the most complex and ambitious construction projects in [human history](#), requiring new technologies in materials, tools and spacesuits, as well as the development of new human skills for working in space. It is regarded as the most expensive machine ever built, with the U.S. cost alone about \$65 billion. Combined with the other partners' shares, the program's life-cycle cost is more than \$100 billion.

The station was completed only this year and is finally ready to allow NASA, along with its international partners, to conduct full-scale research. Initially, 36 hours per week of research will be done on the American side of the station, while the Russians will control their own programs in their labs.

NASA has an ambitious agenda in astrophysics, biology and medicine, said agency spokesman Kelly O. Humphries. Clinical trials are about to start on a vaccine pioneered at the station for a type of salmonella, he added.

Others say any verdict on the quality of that science is not yet in. "We are just getting into the science program, and the outcome of that is yet to be determined," said Charles Vick, a senior analyst at GlobalSecurity.org, a Washington think tank.

If the station were to fall into harm's way while unmanned and had to be "deorbited," NASA would aim it at an empty spot in the ocean. Such a decision would rest with the Space Station Control Board, an international panel that runs the program and is chaired by Suffredini.

"Given the significance of this decision, we would ultimately make a

recommendation to our agency leadership, who would ... approve any plan to deorbit the ISS," he said.

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