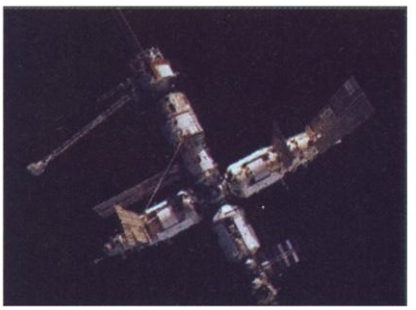
The Rise and Fall of Mir

Mir outlived not only the original manufacturer's warranty but also its parent state, the USSR, by almost 10 years. When the cosmonauts, in the wake of the aborted coup of August 1991, had to land in a "different" country, they learned that the theory of relativity also controls the clocks of history: They move faster on Earth than in space.

Mir's first outpost was launched on 20 February 1986, at the peak of Gorbachev's perestroika. It was a product of post-Apollo Soviet space policy, adopted as a consolation after the disastrous failure to land a Soviet man on the Moon. Mir was the seventh and last in the series of Soviet orbital stations, its predecessors being known by the name "Salute" (1 to 6). Mir consisted of several modules, each dedicated to a different task. The "Quant" module carried the first heavy Soviet high-energy astronomy package, combining several gamma- and x-ray telescopes. This branch of space science was almost nonexistent in the Soviet Union before Mir. "Crystal" carried a number of furnaces and technological devices to study the effects of the microgravity environment on crystal growth and other processes. "Pryroda" (nature) was designed and equipped with a variety of Earth surface and atmosphere observation hardware. But overall, science played junior partner to the interests of aerospace engineering. The cosmonauts' schedules were filled with work running the station's systems. Even during the golden period, before repairs became a major activity, only 8% of the crew's time budget was dedicated to experiments, which had to be shared with others, including the military.



Mir Space Station

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At the time of its launch, Mir was not the highest priority for the Soviet space program (despite the official propaganda). Since the late 1970s, resources had been concentrated on building a counterpart to the U.S. space shuttle. The internal debates regarding the Soviet response to the shuttle were quite heated, because essentially none of the potential user agencies, including the military, could find a satisfactory justification for spending so much money. The program, named "Buran," culminated in two technically very successful launches (the "Energia" super rocket in 1988 and the unmanned version of Buran in 1989) but was abandoned almost immediately in the face of the serious economic crisis that occurred toward the end of Gorbachev's presidency. After the dissolution of the USSR, the one-to-one–scale version of the Buran space plane ended up as a restaurant in Gorky Park in Moscow. Perhaps Mir would have suffered the same fate had it not already been in orbit.

New Russia and her then–newly created space agency decided to try to make Mir financially self-sustainable. By the end of the Soviet era, there was a potential market in flying guest cosmonauts from space hopefuls: the countries in the industrial world (Europe and Japan) that were driven by the need to prepare for the future International Space Station (ISS). Another category of clients was individuals rich enough to pay for a ticket into space. However, the major breakthrough was Russia's decision to join the ISS. Leaving aside the political overtones of this fateful move, it allowed the ISS to build on the practical and technical experience gained during Mir's long and instructive adventures. At the same time, it gave Mir a new assignment: to serve as a test bed for the future operation of the ISS.

This international agreement brought the resources needed to energize Mir and keep it going. However, the space version of the "Survivor" serial could not continue indefinitely. The aging Mir demanded an ever-growing effort to keep it aloft. A fire in February 1997, later followed by a self-inflicted wound during unsuccessful docking with a cargo ship, were serious warning signals. In the end, the general director of the Russian Aerospace Agency, Yury Koptev, concluded that there was no sense in keeping Mir in orbit when the cosmonauts were spending 80% of their time on repairs, while at the same time the international community was expressing concerns that Russia was being distracted from its responsibilities to the ISS. Thus, by all accounts, after 15 years of its odyssey in space, Mir has finally became a liability and will be dumped from orbit. Its service to the Russian and international space programs remains an outstanding contribution and an important lesson learned, not only for the ISS but also for future human missions beyond Earth.

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