

Fungus, a space odyssey

Microbial stowaways have troubled space missions from the get-go. At first the concern was health—that astronauts might pick up some super moon-germ that would devastate Earth on their return. Now it turns out our spacecraft are threatened by microbes from Earth.

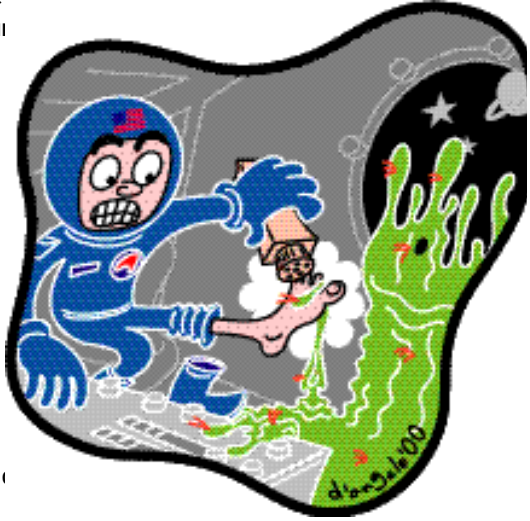
Space programs do take precautions. They fill spacecraft, before launch, with poisonous gases. Crews are quarantined days before a flight. Strict housekeeping and filtering systems are supposed to prevent microbes from establishing their own space colonies.

But fungi have turned out to be tough. Real tough. They get inside plastics where even toxic gases can't reach them, emerging later—scientists don't know exactly why—to wreak their havoc. They can lie dormant for months until they're activated by the right climate. And they not only thrive in space, they procreate. Some fungi found inside Mir in 1995 were descendants of fungi discovered on the station in 1988.

According to a July 27 Space.com article, on one recent Mir mission the crew watched as their view from a porthole slowly deteriorated behind an unidentified film. Microbiologists later examined the hardened quartz porthole and found it partly destroyed by a fungal colony and bacteria visible to the naked eye.

The porthole invasion isn't

an isolated instance. Pull out any insulation on Mir and you'll probably find fungus, according to the October 10 Boston Globe. Visitors to the station have found fungal patches behind control



panels, in the air conditioning, on communications equipment, and elsewhere. Scientists have identified 107 species of fungus on Mir.

When these microorganisms feed on skin flakes and other byproducts of human activity, they produce organic acids that corrode steel, glass, or plastic. And as ornery as these fungi are, the heavy radiation of space—which can be 500 times more intense than on Earth—can significantly mutate them into even tougher breeds. One NASA radiation health manager quoted in the Globe claims that one-tenth of 1 percent of bacterial spores would mutate after a year-long mission to Mars.

Some evidence suggests that increased solar activity also makes fungi more aggressive—so, as it turns out, the race for Mars isn't just