NJ Physics Professor Has the "Right Stuff"

Valorie Sands

In 2005, Dr. Greg Olsen became the third person ever to travel into outer space as a private citizen. Unlike NASA astronauts who earn a generous salary, he bought his own ticket into space. He paid about $20 million for the trip, a ten-day orbit aboard the Expedition 11 Russian Soyuz rocket, which docked at the International Space Station. He also took responsibility for his own training. The space flight was the achievement of a lifetime for the New Jersey entrepreneur and college physics professor.

Olsen's fascination with outer space and astronomy began when he was still a boy. He was born in 1945, years before space travel was close to becoming a reality. In fact, space exploration did not really heat up until the post-WWII rivalry known as the Cold War between Russia and the U.S. Both countries fought to win the race to space.

The Race to Space

In 1957, the Soviet Union took the lead when it sent Sputnik, the world's first artificial satellite, into space. But by 1962, U.S. President John F. Kennedy made it clear that the nation would not take a backseat to Russia. "We choose to go to the moon in this decade… because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win," said Kennedy.

When asked why he loved space travel, Dr. Olsen talked about his professional crewmates, NASA astronaut Bill McArthur and Russian cosmonaut Valery Tokarev. "For the same reason they love it -- to be weightless, to see the awesome sight of Earth from space," he said.

Spaceflight Training School

Going to space school for the Expedition 11 spaceflight "was also like being a college student again," said Dr. Olsen. That is, except for some of the training, which involved zero gravity flights and spins around in a centrifuge of up to 8 Gs acceleration (eight times Earth's gravitational pull). However, most of Dr. Olsen's training was spent in classrooms and in flight

simulators. He was expected to know his way around the Soyuz vehicle, the space station, and to help with day-to-day routines. Yet neither NASA nor the Russians assigned him to heavy-duty responsibilities during the space flight.

According to Olsen, the most physically challenging part of the training was the water-landing exercise to practice "splash down." This is a demanding and dangerous method of landing a spacecraft by parachute into a body of water. To prepare for the grueling task, Olsen and his crewmates wore wet suits and other protective survival gear. During just two hours of practice, he sweated off more than three pounds from his 170-pound frame.

Learning Russian

Despite demanding tests of endurance, Olsen described the physical training as the easiest part of preparation for the experience. He said that for him the hardest part "was trying to learn Russian. I love Russians and the Russian culture… but I've never been good at languages since I was a young person."

Dr. Olsen learned Russian well enough to succeed in bonding well with his Russian crewmate and training personnel. "I'm just in awe of them," he said. "When I watched them operate the Soyuz spacecraft and the simulators, they seemed to know every nut and bolt on the vehicle. I just tried to soak up the knowledge."

Overcoming fear was no problem for Dr. Olsen. He was "very, very confident" about space travel aboard the Russian Soyuz vehicle. "It has a great safety record, and I have no qualms about doing this whatsoever." The main goal of the Soyuz mission was to switch crews, and to replace emergency capsules that must always be attached to the space station in case of an emergency escape.

A Smooth Launch

Olsen's launch from the Cosmodrome, a space launch facility in Kazakhstan, went smoothly. He reported that one of the most unforgettable highlights of his ten-day trip was the lift-off experience during takeoff. He was also awed by the sight of Earth passing by in the rocket's window and the memorable feeling of floating around the space station.

Radio Broadcast from Space

A licensed ham radio operator, Dr. Olsen spoke to New Jersey students from space via a ham radio. In the first of three broadcasts from the International Space Station (ISS) Olsen said, "Welcome to space. It's really nice here. It's nice and roomy."

"In some ways it's like camping out, because we have no running water, no sinks, and we kind of have to fend for ourselves for food," said Dr. Olsen. He reported that the professional astronauts had made him feel welcome aboard the space station.

Olsen expressed appreciation to many of his teachers, colleagues, and family in his space broadcast. He thanked his professors at Fairleigh Dickenson University in Teaneck, New Jersey, where he earned a Master's Degree in Physics. He also thanked engineering students and former classmates at the University of Virginia, the school where he earned his doctorate. It was with their support that he was able to first build a spectrometer that became the basis for his New Jersey company, Sensors Unlimited. Spectrometers are sophisticated space age tools that use light to help astronomers and astronauts collect information. Using a spectrometer, astronauts can calculate the temperature of an object in space, learn which direction it's moving, calculate its speed and weight, and find out what it is made of.

Scientific Studies from Space

Olsen had planned to take an infrared spectrometer built by his Princeton, New Jersey firm with him on his space trip. However, it failed to pass through U.S. Export Customs, so the project had to be shelved. Instead, he conducted three medical experiments designed to study the human body's reaction to the absence of gravity. He also conducted studies on bacteria growth in zero gravity, and on how spaceflight affects the lower back and inner ear. He contributed his scientific findings to the European Space Agency.

The Journey Home

During Olsen's return trip to Earth, there were pressurization problems aboard the Soyuz TMA-6 spacecraft carrying him and his crew home. Overcoming the difficulties at undocking and during the descent tested the astronauts' skill, emotional strength and mental capability. In fact, at a press conference, a Russian News Agency announced that it had been a fairly serious situation. Fortunately, disaster was avoided because the Expedition 11's astronauts all kept their cool and monitored the glitch very closely during re-entry. All three space travelers wore Russian-built Sokol spacesuits, a standard precaution, for an extra layer of protection, according to Olsen.

"At no time was there panic or alarm, or anything of that sort," said Olsen about the pressurization problems during re-entry. He added that at one point during the descent, he needed to add more oxygen into the Soyuz cabin. "We had practiced this many times during simulation practice, and I thought everyone handled it like pros." Ten days after liftoff, the Soyuz crew landed safely back on Earth, in a desert in Kazakhstan.