

Space Sight: How Can You Prepare to See Earth From Space?

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Within the next few years, the next generation of “space tourists” will begin up-down sorties into space from an American spaceport. Among the unearthly delights will be minutes of weightlessness and a window view that’s literally “out of this world.”

But the vista spread out below them may be perceived as little more than a tumult of brilliant colors and half a sky of pitch black, barely recognizable as their home planet. Just as Alan Shepard could only stutter, “Oh, what a beautiful view,” when he first saw the Earth from space half a century ago, these new space visitors will recall being overwhelmed by the sight and scattered details – but perhaps, very little else.

Virtually every space traveler to date has reported being overloaded by new sensations: they all lacked what might be termed “space sight.”

But it turns out that future astronauts and tourists can prepare themselves, with a lot of preflight practice. The need for it – and the value of doing it right – are as yet poorly recognized in the spaceflight training programs currently available. We’re just starting to realize how it can be done.

“A cosmonaut learns to see again”

Cosmonaut Vladimir Lyakhov described the process based on his own six months aboard Salyut-6 in 1979. He wasn't psychologically ready to “perceive” the Earth from orbit. But after about a month, during which he spent perhaps half an hour a day looking out the window, he suddenly “saw” what he had been looking at.

“It's as if a cosmonaut learns how to see all over again,” Lyakhov explained. “At first the finest nuances of color elude you, but gradually you feel that your vision is sharpening and your eyes are becoming better, and all of a sudden the planet spreads itself before you with all its unique beauty.”

Civilian engineer-cosmonaut Valeriy Ryumin reported similar experiences: “It's not easy to find Earth reference points,” he told an international astronautics conference in 1981. “For example, during my 175-day flight [in 1979] it took me one to two months before I could detect color anomalies in the ocean and send the information back to specialists. But during the 185-day flight [in 1980], I could send such information back by the end of the first week.”

Space shuttle veteran Paul Scully-Power, a professional oceanographer, believes his training prepared him for seeing in space. As a scientist intent on learning how space images could unlock secrets of the oceans, he spent years poring over space photographs of Earth's surface. Then, when he went into orbit himself in 1984 as one of the first non-flight-crew observers, he reported seeing sharply and clearly from the very first day.

Scully-Power told me that the secret to instant ‘space sight’ is pre-flight training: watching hi-definition views of Earth's surface taken from orbit or from sub-orbital flights – especially over the exact regions where one's own future flight is to occur. “A dozen or two hours would make an immense difference”, he told me. The time should be spent in front of a large-screen television, for example, viewing the scenes intently. The scenes would be prepared to show wide vistas from random orientations, again and again until the eye/brain link learned to interpret the new visual stimuli.

“Look with your eyes”

Astronaut Sandy Magnus, a space station veteran and a member of the final shuttle mission in mid-2001, had additional advice for novice space-sightseers. “If I had been given only two minutes total to look out a window, here's my advice,” she told me. “Don't watch through a lens – no camera. Look with your eyes. Look all around – don't get fixated on one object.”

How would she have done visual preparation differently, I asked. “I wish I’d studied more geology,” she answered. “We had maps and stuff but that was like cramming for a test.”

There will be plenty of pre-flight training for the up-down ‘space hoppers’ soon to take to the sky. But that will include safety tips, basic rules of moving around, and what to do in emergencies.

To best savor the sweet-but-short sights of our homeworld from outside it and above it, the scheduled classes and practice sessions at the launch site probably are nowhere near enough. Visual orientation exercises at home in the weeks leading up to the flight are probably needed, but training materials are yet to be developed and distributed. That’s probably another business opportunity in the new age of commercial spaceflight.



Astronaut Sandy Magnus in the ISS cupola during the last Space Shuttle mission. Courtesy NASA