

Little Free Flier Offers Astronauts An Eye Outside

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Size-wise, it's just a squirt. But it offers astronauts a new way to get a look at trouble outside a spacecraft.

Engineers at NASA's Johnson Space Center in Houston believe the Mini AERCam holds considerable promise for future space exploration. It is the product of work on such spacecraft that began more than five years ago.

It is basically a flying-eye satellite. It's less than eight inches in diameter and weighs 10 pounds. It is designed to provide views that fixed cameras, cameras on robotic arms or cameras carried by spacewalkers can't.

More formally known as the Miniature Autonomous Extravehicular Robotic Camera, it will be operated either by spacecraft crewmembers or from the ground. It recently passed a series of docking system tests in simulated spaceflight conditions with flying colors.

The docking system is a base outside for the diminutive satellite. That base also serves as a refueling station.

From it, the Mini AERCam might be used to inspect the outside of a spacecraft – avoiding the complications and hazards of having to send crewmembers out on a spacewalk, or perhaps to help operators of a robotic arm keep track of the arm's position in relation to things around it.

The Space Shuttle Program Office is now funding development of the satellite. One idea is using it for future inspections of Shuttle thermal protection systems, though it will not be part of the upcoming return to flight mission.

It also could be particularly valuable during longer spaceflights, to provide information on the outside of the spacecraft.

The Mini AERCam could be used, docked and refueled, and then used again and again. It could be a valuable tool for uncrewed missions as well as in human spaceflight.

An earlier version, the 35-pound, 14-inch AERCam Sprint, flew as a Space Shuttle experiment in 1997. Since then, miniaturized avionics, instrumentation, digital imagers, communications, navigation, video, power and propulsion subsystems have been added and improved.

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