

## First Orion flight will assess radiation risk as NASA thinks about human Mars missions

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The Mars Society's prototype Mars habitat in Utah. Image Credit: Mars Society MRDS

If you wanna get humans to Mars, there are so many technical hurdles in the way that it will take a lot of hard work. How to help people survive for months on a hostile surface, especially one that is bathed on radiation? And how will we keep those people safe on the long journey there and back?

NASA is greatly concerned about the <u>radiation risk</u>, and is asking the public for help in a new challenge as the agency measures radiation with the forthcoming uncrewed Orion test flight in December. There's



\$12,000 up for grabs across at least a few awards, providing you get your ideas into the agency by Dec. 12.

"One of the major human health issues facing future space travelers venturing beyond low-Earth orbit is the hazardous effects of <u>galactic</u> <u>cosmic rays</u> (GCRs)," NASA wrote in a press release.

"Exposure to GCRs, immensely high-energy radiation that mainly originates outside the solar system, now limits mission duration to about 150 days while a mission to Mars would take approximately 500 days. These charged particles permeate the universe, and exposure to them is inevitable during space exploration."

Here's an interesting twist, too—more data will come through the Orion test flight as the next-generation spacecraft aims for a flight 3,600 miles (5,800 kilometers) above Earth's surface. That's so high that the vehicle will go inside a high-radiation environment called the Van Allen Belts, which only the Apollo astronauts passed through in the 1960s and 1970s en route to the Moon.

While a flight to Mars will also just graze this area briefly, scientists say the high-radiation environment will give them a sense of how Orion (and future spacecraft) perform in this kind of a zone. So the spacecraft will carry sensors on board to measure overall <u>radiation</u> levels as well as "hot spots" within the vehicle.





Orion in orbit in this artists concept. Credit: NASA

More information: <u>www.nasa.gov/content/nasa-inno ...</u> <u>ssions/#.VG9GeJDF\_SZ</u>

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