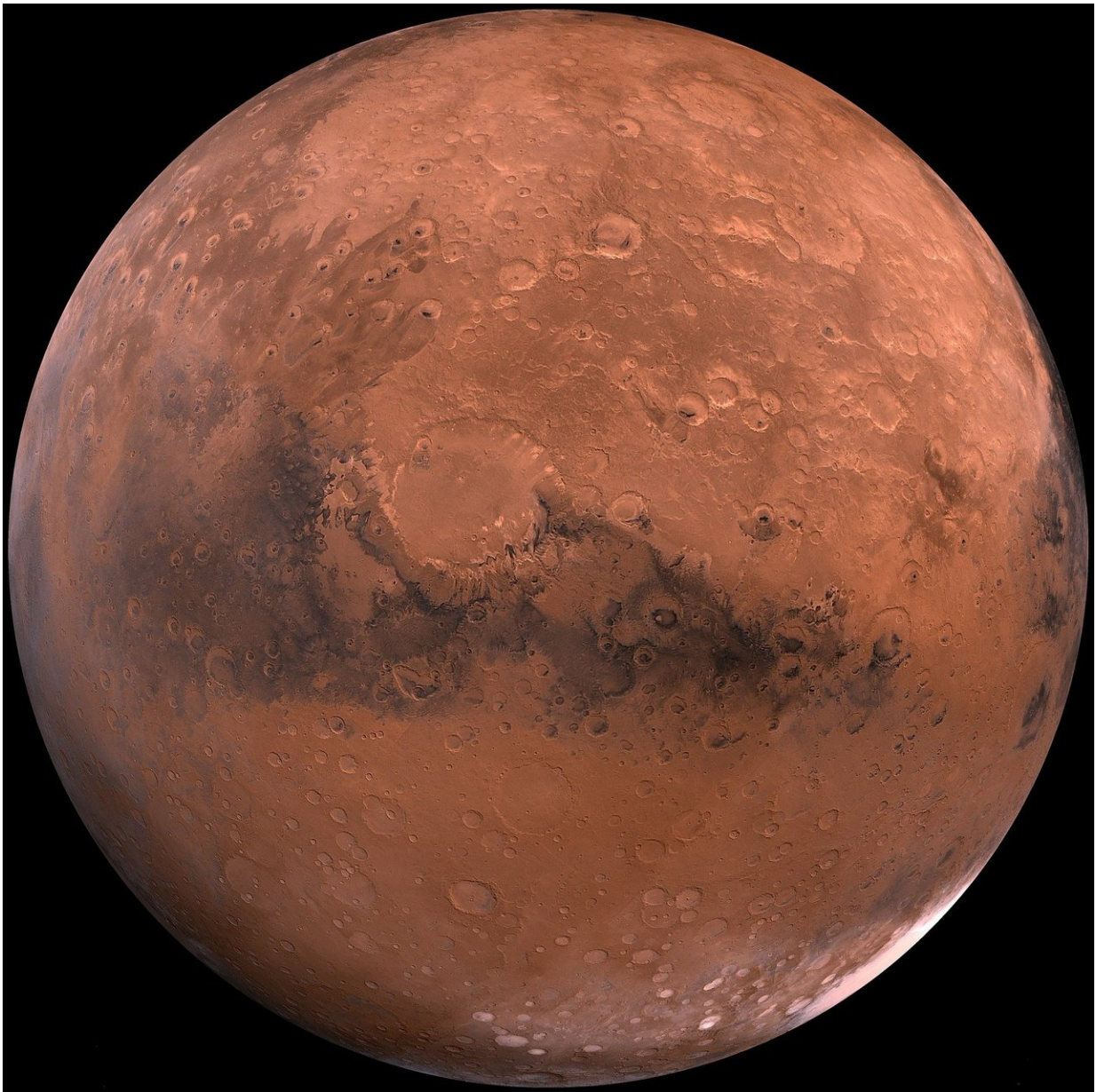


Life on Mars: Will humans trash the planet like we have Earth?

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Mountains of garbage, plastics that take thousands of years to disintegrate, oil spills in pristine environments from drilling into the soil or underneath the ocean: When we go to Mars, is it inevitable we'll repeat the same mistakes on Earth?

Resources will be so limited that creating a [waste stream](#) will be nearly impossible—at least at first. That's because humans will only take what we absolutely need due to the limited space on rockets and spaceships and the time it takes to get to the planet—nine to 11 months, one-way.

"Everything that you use and you create on Mars is so valuable. You simply can't afford a pollution stream, you can't afford a waste stream at all. Everything will absolutely be recycled ... at least in the beginning," said Stephen Petranek, author of "How We'll Live on Mars."

As part of the efforts to eventually get humans to Mars, we've already put our mark on the planet through rovers and the latest NASA mission, InSight, which recently snapped a selfie as it begins getting to work mapping the inside of the planet in 3-D to better understand its evolutionary origins.

But we will have a far greater impact on the planet when humans get there, especially if terraforming—making the planet more Earth-like by modifying its atmosphere—occurs.

"It will probably become a problem when Mars does seem a lot more like Earth and resources just aren't as hard to come by," Petranek said. "But people on Mars can choose, once they figure out to have a non-waste environment and a non-pollution environment, there's no reason

for them not to keep that."

That doesn't mean it will be easy, said Leland Melvin, a former NASA astronaut.

"That balance of not polluting and terraforming versus understanding how we can live in this ecosystem in a way that's not going to damage it for our own use: That's a really tough balance to strike," he said. "We need to learn from our mistakes here on planet Earth as to all of these systems and things that have been damaged because of, some of it's greed, some of it's let's get as much oil out of the ground."

When you put it in perspective, it didn't take that long for humans to create issues here on Earth. While we've been around for hundreds of thousands of years, it's only in the past couple hundred that we've created major problems, said Antonia Juhasz, an author, analyst and investigative journalist with expertise in oil and energy.

"We have made this planet increasingly inhospitable to an increasing number of humans who live here," Juhasz said. "The lessons from what has gone wrong with fossil fuel extractions on Earth must be understood because no matter what, even if we go to Mars, not everybody is going to Mars."

To do that, she said, we need to change our mindset—we can't just look at Mars as an empty space with no value other than how it can provide for us.

"If we do that on Mars, will we then just create another planet that is no longer hospitable for us? Are we going to then go down through the solar system destroying [planets](#) or are we going to learn from our mistakes?" said Juhasz, who speaks about the potential of industry colliding with environment on the Red Planet on National Geographic's "MARS"

series.

"If you look at Mars and all you see is red dirt, but it turns out that if humans are going to live on Mars, they're going to actually need some critical component of that red dirt," she added.

But Petranek said the driver for the pollution and trash on Earth just won't be a factor on Mars—at least for a very long time.

"The primary problem on Earth is that the reason we are so wasteful and so destructive is we can't seem to agree both within our own country on what we should do and nations don't agree," Petranek said. "That isn't going to happen on Mars because survival is going to be so much more critical."

While there will be little to no waste at first on Mars, that doesn't mean we can ignore the potential to backslide down the road, Juhasz said.

"We have a much longer history which is people knowing that they could only use certain resources, and reusing them much more conscientiously, then we have only a limited history in which we decided you could use anything and everything and it didn't matter what we did with it," she said. "Hopefully, we can reflect back on that longer history, and keep that with us if we go to another planet."

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