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# Mars Announcement Changes Professor's Lesson Plans

## Quick Facts

- Spectral analysis from past years had shown thin streaks that darken in the spring and summer and nearly disappear in the winter.
- Lipinski said the discovery is "one for the ages" and raises questions for future life.



T.J. Lipinski

ROCK HILL, SOUTH CAROLINA -- Winthrop University adjunct **faculty member T.J. Lipinski** had his lesson plans all prepared and ready to go for his Sept. 28 classes.

But those plans changed when the **National Aeronautics and Space Administration (NASA)** announced its exciting new discovery: **evidence that liquid water flows seasonally on present-day Mars.**

"This was such an important discovery," said Lipinski, who lists astronomy as one of his research interests. "It's truly a discovery of the ages. I had to say something."

Several of his students came to class already buzzing with the news. They discussed the discovery and watched the video of NASA's announcement.

According to Lipinski, people need to understand that water was not actually seen on Mars; what was seen were hydrated salts—sodium perchlorate, in particular—indicating that there is sometimes strong, briny water flowing on the "red planet." Spectral analysis from past years had shown dark, thin streaks on the planet's surface. The streaks appear more prominent in the Martian spring and summer, and fade in the cooler seasons. This is all strong evidence that there is liquid water somewhere on the planet.

"Granted, a Martian summer is below 10 degrees Fahrenheit," Lipinski said. "Water would normally freeze at this temperature, but these perchlorates are lowering the freezing point, like when salt is applied to icy roads."

Before Monday's announcement, these streaks had been a "great mystery," he said.

"[This newest discovery] has raised a lot of interesting possibilities and questions about us going there," he said. "The thing about life is, it always follows water. That's been NASA's mantra, 'follow the water.'"

Indeed. In a paper published Monday in "Nature Geoscience," authors Lujendra Ohja, Mary Beth Wilhelm and their co-authors **noted that liquid water's presence on Mars today "has astrobiological, geologic, and hydrologic implications and may affect human exploration."**

But people shouldn't pack their bags and plan for an intergalactic move just yet.

## New Matt Damon film "The Martian": Could It Happen?

Movies like the upcoming "The Martian," starring Damon as an astronaut who gets stranded on Mars and must survive on the chance he will be rescued, don't necessarily reflect reality at the moment. Damon's character attempts to grow potatoes on the planet and, at one point, suffers an injury that seems to perforate his spacesuit.

“The Martian atmosphere is mostly carbon dioxide,” Lipinski said. “The pressure is one-hundred times less than that on Earth. The difference in pressure would kill you.”

“I don't know if anything would grow there; I don't know if it has the nutrients plants would need to grow,” Lipinski explained. “The soil is mostly rust, hence its red color. There's also a lot less light.... But we used to think sunlight was essential. Now in deep oceans we've found geothermal vents where microbial life thrives.”

Lipinski believes we would be more likely to find conditions hospitable to humans on **Europa**, one of Jupiter's moons, or **Enceladus**, one of Saturn's smaller moons.

But, he wouldn't rule Mars out.

“That's a good question,” he said. “If there's liquid H2O...you'd have to heavily filter it and treat it...but if it's readily available, it brings up another question: If there is life, do we have the right to change it?”

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