

No water on Mars, but something close to it

Posted At : January 10, 2016 10:05 AM | Posted By : Mavis Carr

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By Kenya Baker

In a September press release, **NASA confirmed evidence** of flowing water on the planet Mars. Using the **Mars Reconnaissance Orbiter** it provided proof that liquid water flows on Mars.

Researchers discovered signatures of hydrated minerals on slopes where streaks are seen. These streaks appear to ebb and flow over time, darkening and appearing to flow down steps during the warm seasons and then fading during cooler seasons. The flows going downhill are known as reoccurring slope lineae and have been described as possibly related to liquid water. The discovery of these hydrated salts is believed to lower the freezing point of liquid brine, similarly to salts found on the roads of Earth that melts snow at a faster rate.

Despite NASA's findings **Nicholas Heavens, Ph.D.**, research assistant professor of Planetary Science at Hampton University was not as thrilled about the hydrated salts being discovered on Mars. According to Heavens, "First, the major scientific result that it is based on is simply that recurring slope lineae looks like they contain hydrated salts. At our present state of knowledge, that could be coincidental. Moreover, flowing water on Mars probably would have atmospheric effects that so far have not been studied. In other words, the result that justifies the 'confirmation' is one of many results that would make up a coherent argument that there are liquid water flows on Mars.

"However, I do not want to detract from the hard work of the authors of the study in question. The result they present is a valuable contribution and well demonstrated. Science however, is very incremental. The study is only one step to confirming liquid water flows on Mars. Second, despite some work by NASA to argue against this idea, there have been rumblings that flowing brines on Mars would be potential habitats for life. They are some salt-tolerant microbes on Earth, but these conditions in these flows on Mars likely would be too extreme to sustain even the Earth's hardiest organisms."

Finding evidence of flowing water on Mars is no small feat. Aside from the possibility of one day going to Mars, there are a few reasons behind why one would want to go to the red planet. **Kunio Sayanagi, Ph.D.**, assistant professor in the Atmospheric and Planetary Sciences department believes there are three reasons why one would want to travel all the way to Mars.

1. Sending people to exotic places and coming back with stories is human nature. It is also human nature to explore.
2. Get people excited about technology. We need beyond bleeding-edge technology. It's about keeping people alive in environments and we can learn more about human physiology.
3. Eventually, we're going to need another planet.

Graduate student John Balock added a fourth reason for why people should

want to travel to Mars: "People are better at doing science better than robots. A robot doesn't know how to feel luck or act on intuition so you'd have to send a person to detect certain stuff."

The goal is to have people going to Mars by 2033. Before NASA or any other association with the power to send people to Mars there are steps that need to take place as well as enough of the proper resources. Most importantly, Mars should be able to sustain life before people begin staying on the planet, and there are many factors that go into that.

Balock says that's there are steps we must take before anyone can live on Mars. Some of those steps include an Earth-dependent mission to test out equipment, and then an independent mission supplying resources followed by bringing an asteroid to orbit the moon to run more tests. People will be sent to land and live on Mars' moon Phobos for six months. The film "**The Martian**," released just days before NASA's announcement, explores the idea of an independent mission of living on Mars. It tells the story of an astronaut getting stuck and being forced to survive on his own with little resources, but he still manages to make it back to Earth. The story may be fiction, but even Hollywood is on board with sending people to Mars.

Astrophysicist Neil deGrasse Tyson had his own opinions on the film and its depiction of Mars. During an interview with "CBS This Morning" in October Tyson said "The Martian atmosphere is less than 1 percent the thickness of our atmosphere and so when the wind picks up, it doesn't pick up heavy things--it can't and so it picks up only very light dusts."

Tyson understands that some details of the film had to be exaggerated in order to tell the story in an entertaining fashion. In regards to the evidence of water flow on Mars he said, "Even as an astrophysicist, I consider the search of life in the universe to be the greatest and highest goals in all branches of science."

Although Mars is the current focus and seemingly the most realistic, there are other planets that could possibly be another home for humans. Some of these planets may never get explored due to how far away they are or how difficult it maybe to get to them. But as science continues to advance, there is hope that one day we may be able to get to these distant planets.

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