Astrobiology News September 2018: Mars Revisited

As I write this, the "Becoming Interplanetary" event, which will be held at the Library of Congress on September 27th, is only one week away! You can now find the schedule and the list of exciting and ethnically diverse speakers and performers, representing equally diverse disciplines from the sciences, arts, and humanities, on the *Decolonizing Mars* website.¹ You can read about them under each of the three "beats": *The Right Stuff, Mars on Earth*, and *Alternative Futurisms*. The event will be recorded and accessible after the conference, and may also be livestreamed, so I encourage you to keep checking the website if you're interested in this topic! This event will be the beginning of what I'm sure will be an ongoing public conversation regarding human exploration of Mars in coming years.

The more we learn about Mars from remote observations, the more intriguing this world becomes. This summer, researchers found evidence suggesting a subsurface, liquid water `lake' on Mars, in data acquired with the Mars Advanced Radar for Subsurface and Ionospheric Sounding (MARSIS), a radar instrument on board the Mars Express orbiter.² MARSIS sends pulses of radio waves down to Mars – some bounce off the surface, but others can penetrate up to 3 km below the surface. The patterns and strength of the reflections provide information on the composition of different layers below Mars' surface. The suggested cold, briny aquifer under Mars' south pole resembles bodies of water found under kilometers of ice in Greenland and Antarctica.

Although compelling, the evidence isn't conclusive, but it does provide incentive to search for other subsurface lakes, particularly at lower, warmer, latitudes. Searching for possible life in subsurface bodies of water on Mars would be a far more difficult endeavor, requiring drilling through more than a kilometer of ice. In any case, remote observations provide tantalizing clues regarding Mars' wetter past, and raise the asyet-unanswered question, does some form of life exist on Mars today?

Until next month,

Grace

¹ https://www.decolonizemars.org/becoming-interplanetary/ ² http://www.sciencemag.org/news/2018/07/liquid-water-spied-deep-below-polar-icecap-mars