Astrobiology News July 2020: Perseverance Seeking Past Life on Mars

The Mars 2020 Perseverance Rover is scheduled to begin its journey to the Red Planet this summer, during a launch window from July 30th to August 15th, and there may still be time to get your boarding pass.¹ Don't worry - if you miss this opportunity, you can still join (in name) a future mission to Mars! Perseverance is an important part of NASA's Astrobiology program - it will search for signs of ancient life, and collect rock and soil samples for potential return to Earth by a future mission. Scheduled to land on Mars on February 18, 2021, the mission lifetime is anticipated to be about 687 Earth days (or one Martian year.) Accompanying Perseverance, the Ingenuity Mars Helicopter² will test the first powered flight in the thin Martian atmosphere. While not related to the rover's search for signs of ancient life, Ingenuity's flight test will be important for future robotic, and possibly human, missions to Mars.

NASA's Mars Exploration Program builds on previous discoveries. From the science themes "Follow the Water" to "Explore Habitability", Perseverance now marks the transition to the current theme, "Seek Signs of Life".³ Its landing site, Jezero crater, was chosen in part because of the fossil remains of a river delta and the largest carbonate deposit yet detected on Mars. Perseverance will carry seven principal instruments that will investigate Martian geology, atmosphere, environmental conditions, and potential biosignatures, including the aptly named SHERLOC (Scanning Habitable Environments with Raman & Luminescence for Organics and Chemicals), which uses multiple tools to search for organics and minerals that have been altered by watery environments and may be signs of past microbial life.

The Jet Propulsion Lab is offering many ways you can virtually participate in the Mars 2020 mission,⁴ but why stop there? You can actively contribute to research aimed at understanding Martian geology by going to <u>research projects</u> and searching for "Planet Four".⁵ You should be able to find three or four active Zooniverse citizen science projects where you can inspect amazing images provided by the Mars Reconnaissance Orbiter. Whether or not you decide to participate in these or other Zooniverse projects, would you mind taking 5 minutes to fill out a survey that will help us improve online citizen science experiences for everyone? We're asking folks to please use our <u>pre-participation⁶</u> survey if you haven't used Zooniverse yet and our <u>post-participation⁷</u> survey after you have. This will help us seek opportunities to fund exciting new initiatives. Thanks in advance for your efforts to advance human knowledge! As always, I invite you to contact me if you have questions or comments.

Until next month,

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¹ <u>https://mars.nasa.gov/participate/send-your-name/mars2020/</u>

² <u>https://mars.nasa.gov/technology/helicopter/</u>

³ <u>https://mars.nasa.gov/mars2020/mission/science/</u>

 ⁴ <u>https://www.jpl.nasa.gov/news/news.php?feature=7701</u>
⁵ Please access Zooniverse projects through this link so we can better evaluate our outreach impact: https://zooniverse.org/projects?utm_source=newsletter&utm_campaign=projects-CLP

⁶ Pre-survey: <u>https://forms.gle/x5TezWJEqAZnLb39A</u> ⁷ Post- survey: <u>https://forms.gle/opYzTKSxK3PFJtv9A</u>