Searching salt for answers about life on Earth, Mars

August 10 2012, By Lainie Rusco

Associate professor Mark Schneegurt had a paper published in the journal "Astrobiology" about microbial life on Mars.

Wichita State University associate professor Mark Schneegurt recently had a paper published in the journal *Astrobiology*.

His paper focused on bacteria that live in environments that are salty, but not with sodium chloride – the kind of salt we're used to. It has to do with magnesium sulfate, also known as Epsom salt.

Researchers have discovered that not only is there evidence of liquid water on Mars, but the planet is also rich with magnesium sulfate.

One of the questions Schneegurt is seeking an answer to is whether microbial life on Earth can grow at these high concentrations of

magnesium sulfate.

"This impacts our understanding of what ancient or current life on Mars may be like," he said. "What single discovery could have a greater impact on our philosophy and culture, how we view ourselves in the universe, than finding life on another planet?"

Finding life on Mars?

Other questions his paper and research deal with include:

- Are there any microbes on Earth that may be able to survive on Mars?
- How can we protect our search for life on Mars by preventing terrestrial microbes from infecting Mars when a spacecraft lands?
- Are epsotolerant microbes a glimpse at what life may have been like – or is like – on Mars?

Schneegurt said it's been hypothesized that living in high magnesium sulfate may be the hardest part of living on Mars, but his contention is that it's not as difficult as some scientists think.

Part of his research also focuses on searching for life in lakes with high magnesium sulfate levels, as well as searching for similar life in spacecraft assembly facility clean rooms.

Schneegurt and his research team have been working at Hot Lake in Washington and Basque Lake in British Columbia, and have isolated hundreds of microbes that grow at high magnesium sulfate concentrations. The goal is to characterize those microbes and see if they can also find them in spacecraft assembly facilities.

"If we bring life with us and it can grow on Mars, this makes it more difficult to be sure that any life we find on Mars actually comes from Mars," he said. "It also will impact our efforts in forward planetary protection, where life from Earth contaminates Mars when a spacecraft lands."

Schneegurt said not only can his research teach us more about life on Mars. It can teach us about our own planet.

"Our work has relevance to the origins of life on Earth, since life may have arisen from a briny tidal pool." he said.

Provided by Wichita State University