

ASTRONOMY

Indications of water on Mars lift hopes for life elsewhere

Tuesday, January 09, 2007

KENNETH HICKS

NASA released exciting news last month: There is evidence suggesting water under the surface of Mars. If true, this could have important implications for space travel and the possibility of microbial life on Mars.

Pictures released on NASA's Web site last month show new deposits of a white substance that appeared to flow down two gullies. The photos were taken with the black-and-white camera on the Mars Global Surveyor, which began mapping Mars from its orbit of the planet in 1999.

A comparison of photos taken at the same location in 1999 and 2005 show, at the very least, that something changed on the surface. The simplest interpretation is that subterranean water was forced to the surface and then froze after flowing some distance.

But the evidence is not conclusive.

Suppose that water is responsible for the flows. Six years — the time between photos — is a short time, geologically speaking. These flows likely are not isolated cases. It's possible that liquid water is below the surface across Mars.

If astronauts ever make it to Mars, a plentiful water supply would help immensely. In addition to replenishing the water supply, electrolysis could be used to break down the water into oxygen and hydrogen.

Water is considered essential for the development of life. In addition, amino acids have been found in meteorites and are likely found on the surface of Mars. Amino acids need water in order to mix and combine into the chemicals of life.

Our solar system has been around for about 4.5 billion years. If there is even a small probability for the chemicals of life to form, then given a long enough time period, it could happen.

The new photos raise the possibility that primitive life could exist below Mars' surface. And if simple life were to exist on Mars, then maybe life could exist elsewhere in our galaxy.

A new satellite, the Mars Reconnaissance Orbiter, is now in orbit around the planet and will take high-resolution color photos of the surface. New photos could confirm whether subterranean liquid water is present.

But it still doesn't answer the more pressing question: Are we alone in the universe?

Kenneth Hicks is a professor of physics and astronomy at Ohio University in Athens.

hicks@ohio.edu

