

## Dig deeper for Mars life, scientists urge

by World-Science.net

Probes in search of Martian life haven't drilled deep enough to reach the living cells that scientists hope may lurk within the red planet, according to new research. A sunset on Mars, an image that this month was voted as favorite in a public poll of Mars images from NASA's Spirit rover. (Courtesy NASA). Radiation would have killed off most cells near the surface long ago, the investigators said. Unlike Earth, Mars is unprotected by a magnetic field or thick atmosphere; for ages it has been laid bare to radiation from the sun and other stars. The research, to appear in the journal *Geophysical Research Letters* this week, concluded that any less than a few meters (yards) deep, cells couldn't take that beating for long enough to be found alive. The authors mapped radiation levels at various depths and concluded that the best place to search is in Elysium, a newly discovered frozen sea. "Finding hints that life once existed" proteins, DNA fragments or fossils would be a major discovery in itself. But the Holy Grail for astrobiology is finding a living cell that we can warm up, feed nutrients and re-aerate for study. "said Lewis Dartnell of University College London, the study's lead author. Even before his report, the overall dryness of the Mars landscape had dimmed hopes that active cells would turn up easily. But scientists had hoped that at least some dormant life forms, such as spores, might be found, Dartnell said. His contention is that even those "while typically hardy" could have survived the billions of years' worth of radiation that would have pelted them since water was last widespread. Scientists will have to dig deeper or target very specific, hard-to-reach areas such as recent craters or areas where water has recently surfaced, he added. The team argued that the choicest hunting grounds should be the Elysian ices because the frozen sea seems to have surfaced only in the last five million years, a period conceivably survivable by dormant life forms. Ice also provides a shield of hydrogen to protect life on Mars from destructive radiation particles, and is far easier to drill through than rock, Dartnell's team said. But overall, the drilling is a problem: even with the ice, current drills aren't potent enough to reach where the living cells might be, the researchers added. Other ideal sites, they said, include the gulches recently discovered in the sides of craters, as these are thought to have flowed with water in the last five years.

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