

Early life on Earth may have developed more quickly than thought (w/ Video)

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The Earth's climate was far cooler -- perhaps more than 50 degrees -- billions of years ago, which could mean conditions for life all over the planet were more conducive than previously believed, according to a research team that includes a Texas A&M University expert who specializes in geobiology.

Mike Tice, a researcher in the Department of Geology and Geophysics at Texas A&M, says the findings could change current ideas about the earliest forms of life on [Earth](#). The team includes scientists from Yale University and Stanford University, and their work is published in the current issue of *Nature* magazine.

Tice says the team examined rocks from the Buck Reef Chert in South Africa that are known to be about 3.4 billion years old, among the oldest

ever discovered. They found features in them that are consistent with formation at [water](#) temperatures significantly lower than previous studies had suggested.

"Our research shows that the water temperature 3.4 billion years ago was at most 105 degrees, and while that's potentially very warm, it's far below the temperatures of 155 degrees or more that previous research has implied," Tice explains.

The research found that conditions were considerably cooler, probably by 50 degrees or even more. That means that conditions for life were much easier, and that life that did exist at the time was not under as much stress as previously believed.

Tice says the situation could be compared to the geysers currently found in Yellowstone National Park.

The hundreds of hot spring pools in the park vary considerably in temperature, although all of them range from very warm to extremely hot. Water in the pools that is farthest from the center is cooler, and this is shown in the varied colors - from pink to light green, orange and dark green colors, he says.

When water temperatures fall to below 163 degrees or so, close to the high temperatures previously hypothesized for the early ocean, communities of green photosynthetic bacteria begin to grow on the pool floor. These communities become thicker as water temperature continues to drop off away from the pool centers.

"There is life even in the hottest water, and microbes there have evolved to grow in those harsh conditions. But there is even more life present in the cooler waters," he notes. "We think this is similar to what conditions

might have been like billions of years ago."

Tice says the new findings could open doors for new ways to look at Earth's early history, especially life forms that existed billions of years ago.

"We know life was around that long ago, but these findings show that the very stressful conditions for life to exist may not have been as stressful as we had thought," he notes.

"It means more organisms may have been around that were not necessarily heat-loving ones. The findings could give us a better understanding of how [life](#) evolved and maybe give us some clues about the long-term history of Earth's [climate](#) and atmosphere."

Source: Texas A&M University

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