

"Lethally Hot" Earth Was Devoid of Life—Could It Happen Again?

Written by Darren

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Extinctions during the early Triassic period left Earth a virtual wasteland, largely because life literally couldn't take the heat, a new study suggests.

Between 247 to 252 million years ago, Earth was reeling from a mass extinction called the end-Permian event. The die-off had wiped out most life on Earth, including most land plants. The planet was baking, and life at the Equator struggled to survive.

Plants gobble up carbon dioxide, which warms the planet. So without them, Earth became "like a runaway greenhouse—it [started] to get out of control," said study co-author Paul Wignall, a paleontologist at England's Leeds University.

The few life-forms that had survived the Permian extinction—such as hardier snails and clams—died in the deadly heat, leaving Earth a virtual "dead zone" for five million years, said Wignall.

(Related: Permian extinction lasted 200,000 years.)

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For the study, Wignall and colleagues studied tiny fossils taken from shallow seas in southern China, which at the time was at the Equator.

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By studying oxygen isotopes in the fossils that serve as "reliable" proxies for seawater temperatures, the researchers found that these particular post-Permian seas reached 104 degrees Fahrenheit (40 degrees Celsius) at the surface—levels the study authors call lethally hot. The modern average for the same area is between 77 and 86 degrees Fahrenheit (25 and 30 degrees Celsius).

Those high temps may help solve a longstanding scientific head-scratcher: Why did Earth take five million years to recover from the Permian extinction, versus a few hundred thousand after other mass extinctions? Apparently, it was just too darned hot.

(See pictures of the Permian period.)

The World at Its Worst

Could it happen again? "In theory it could," Wignall said.

Earth's average global temperature has increased by about 1.4 degrees Fahrenheit (0.8 degree Celsius) since 1880, according to NASA's Goddard Institute for Space Studies. Two-thirds of that warming has happened since 1975.

But even with current warming trends, "we're a long, long way to getting to this severe."

For one thing, most of Earth's plant life would have to be wiped out first—an unlikely scenario under current models, Wignall said.

But at geologic time scales, he added, "We're showing just how bad the world could get."