

New research suggests global ice age changed the face of the planet

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Credit: NASA

Curtin University researchers have discovered that a global ice age more than 600 million years ago dramatically altered the face of the planet, leaving a barren, flooded landscape and clear oceans.

The research, published in *Terra Nova*, examined how distinctive carbonate [sedimentary rocks](#) formed over the course of millions of years

after the Snowball Earth.

The sedimentary rocks, much like the limestone in tropical oceans today, formed in oceans starved of sand and mud eroded from the land.

Lead author Ph.D. candidate Adam Nordsvan, from the School of Earth and Planetary Sciences at Curtin University, said the new research called into question previous suggestions that the formation of the characteristic rocks took place over a much shorter period of time.

"It was previously thought that these distinctive carbonate rocks were deposited over less than 10 thousand years, as the sea level rose when the ice that covered the entire globe melted, but we have shown that they were likely deposited over hundreds of thousands to millions of years following the [sea-level rise](#)," Mr Nordsvan said.

"There is already some evidence that suggested these rocks took a long time to form, but no one had been able to explain why this might have occurred.

"What is intriguing about the period following Snowball Earth is that the planet surface was essentially completely renovated. It appears that the extended [glacial period](#) removed all the beaches, deserts, rivers and floodplains, and reset important Earth systems that took millions of years to recover."

Co-author Dr. Milo Barham, also from Curtin's School of Earth and Planetary Sciences, said the findings may have important implications for the evolution of complex life.

"The melting of ice sheets after Snowball Earth caused a dramatic rise in sea level, ultimately flooding the continents, driving a remarkable retreat of shorelines and the development of clearer ocean water," Dr. Barham

said.

"Researchers have long been aware that the timing of Snowball Earth and the development of more complex life seem to have coincided, but no one has really thought about how the oceans being starved of sediment might have helped ancient organisms thrive in the oceans."

More information: Adam R. Nordsvan et al. Major shoreline retreat and sediment starvation following Snowball Earth, *Terra Nova* (2019). DOI: [10.1111/ter.12426](https://doi.org/10.1111/ter.12426)

Provided by Curtin University

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