

# Earth's early haze

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- *From:* [TomHendricks474@xxxxxx](mailto:TomHendricks474@xxxxxx)
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From Spaceflightnow.com

Note UV component.

U. Of Colorado – Boulder news release

Hazy skies on early Earth could have provided a substantial source of organic material useful for emerging life on the planet, according to a new study led by the University of Colorado at Boulder.

"The researchers mimicked Titan's hazy skies by exposing methane gas to an ultraviolet lamp, then added carbon dioxide gas to the mix to see if conditions that were probably present on early Earth would produce a similar organic haze. "It turns out that organic haze can form over a wide range of methane and carbon dioxide concentrations," said Tolbert. "This means that hazy conditions could have been present for many millions or even a billion years on Earth while life was evolving."

According to co-author Melissa Trainer of CU-Boulder's Laboratory for Atmospheric and Space Physics, the study was the first to measure the chemical properties of aerosols by irradiating methane and carbon dioxide with ultraviolet light. "We found that you can make a lot of organic material virtually out of thin air," said Trainer, who completed her doctoral degree in CU-Boulder's chemistry and biochemistry department at CU in May 2006 under Tolbert. ...

According to the study, a similar haze hanging over Earth early in its history could have supplied more than 100 million tons of organic material to the planet's surface each year. "As these particles settled out of the skies, they would have provided a global source of food for living organisms," said Trainer.

Previous efforts to understand early life on Earth have focused on extreme environments like hydrothermal vents, where energy and nutrients are plentiful, said Tolbert. The new study shows that such a high-energy food source could have been produced globally early in Earth's history, possibly expanding the habitable domain for early life, she said. "

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It goes on to say this may have protected earth from harmful UV. Again I don't see UV as harmful overall – I think it is a necessary component of life processes.