Life on Venus

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Researchers have announced that they have spotted the fingerprint of phosphine in Venus' atmosphere, at an altitude where temperatures and pressures are similar to those here on Earth at sea level. High in the toxic atmosphere of the planet Venus, astronomers on Earth have discovered signs of what might be life.

Life on Venus

- Researchers at Cardiff University in Wales and the Massachusetts Institute of Technology have just published a paper in the journal Nature Astronomy in which they claim to have found a smelly, toxic gasphosphine, high in the thick clouds of the Venusian atmosphere.
- •On Earth, phosphine is produced by certain types of bacteria. It is considered as a marker for life. Phosphine a phosphorus atom with three hydrogen atoms attached is highly toxic to people.
- Venus is Earth's closest planetary neighbor. Similar in structure but slightly smaller than Earth, it is the second planet from the sun. Earth is the third. Venus is wrapped in a thick, toxic atmosphere that traps in heat. Surface temperatures reach a scorching 880 degrees Fahrenheit (471 degrees Celsius), hot enough to melt lead.
- Some scientists have suspected that the Venusian high clouds, with mild temperatures around 86 degrees Fahrenheit (30 degrees Celsius), could harbor aerial microbes that could endure extreme acidity. These clouds are around 90% sulphuric acid. Earth microbes could not survive that acidity.
- The astronomers have not collected specimens of Venusian microbes, nor have they snapped any pictures of them.

- But with powerful telescopes, they have detected the chemical.
- After much analysis, the scientists assert that something now alive is the only explanation for the chemical's source.

Phosphine on Earth

- On Earth, microorganisms in anaerobic environments (ecosystems that do not rely on oxygen) produce phosphine. These include sewage plants, swamps, rice fields, marshlands, lake sediments and the excrements and intestinal tracts of many animals. Phosphine also arises non-biologically in certain industrial settings.
- To produce phosphine, Earth bacteria take up phosphate from minerals or biological material and add hydrogen.

Telescope Used

- The international scientific team first spotted the phosphine using the James Clerk Maxwell Telescope in Hawaii and confirmed it using the Atacama Large Millimeter/submillimeter Array (ALMA) radio telescope in Chile.
- Earth-based telescopes like those used in this research help scientists study the chemistry and other characteristics of celestial objects.