DARK OXYGEN

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Context:

Researchers have discovered “dark oxygen” being produced in the deep ocean.

Background:

The recent study published in Nature Geoscience, a journal dedicated to Earth sciences research, shows oxygen emitted from mineral deposits 4,000 meters (about 13,000 feet) below the ocean’s surface on the seafloor of the Pacific Ocean’s Clarion-Clipperton Zone (CCZ).

Key takeaways:

1. Oxygen is essential for life on Earth, and we’ve long associated it with photosynthesis—the process by which plants and algae produce oxygen using sunlight.
2. However, recent discovery challenge this understanding. Scientists have found evidence of an additional source of oxygen called dark oxygen.

What Is Dark Oxygen?

1. Dark oxygen is produced deep under the sea without sunlight.
2. Polymetallic nodules, which are naturally occurring mineral masses found on the ocean floor, play a crucial role in this newly discovered process.
3. These nodules, made up of metals like manganese, iron, cobalt, nickel, copper, and lithium, can generate oxygen through electrochemical activity even in the absence of light.

Implications and Significance:

1. Until now, we believed that all oxygen came from photosynthetic organisms (plants and algae).
2. Dark oxygen challenges this notion, suggesting that there might be alternative oxygen sources.
3. It raises intriguing questions about the origins of life on Earth.

Where Did Dark Oxygen Come From?

1. Scientists discovered dark oxygen at a depth of 4,000 meters (about 13,000 feet) below the ocean’s surface , specifically from the pacific ocean’s Clarion-Clipperton Zone (CCZ).
2. The fact that it’s produced without sunlight implies that life might have existed before photosynthesis emerged.