Life finds a way after deep-sea chimneys go out

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Abstract

Hydrothermal vents in the deep sea spew noxious chemicals like hydrogen sulfide at temperatures of up to 750°F, and yet they're teeming with life. But what happens when these underwater chimneys stop smoking? That's what researchers exploring vents in the Eastern Pacific set out to discover. The team compared DNA between microbes inhabiting an active sulfide chimney, and microbes colonizing a chimney that went extinct in 2006 due to a volcanic eruption. A look at the genes responsible for converting fuel (energy) into food revealed a crucial distinction. While the live chimney was dominated by microbes feeding on chemicals in the super-hot fluid, the dormant chimney was rich with microbes metabolizing solid minerals. Remarkably, that dietary switch appeared to flip within the first few years of the chimney's extinction and could likely remain stable for thousands of years. Further research could help scientists get to know these deep-sea ecosystems even better and learn when and how to protect the numerous creatures that call them home.