

# Hydrothermal Vents - Lecture Script

Let's return to hydrothermal vents, which we first mentioned in the lecture on earth's formation. Hydrothermal vents are found in isolated spots along the rift valleys of mid-ocean ridges where seawater that has penetrated cracks in the crust has circulated down to the magma chambers, left salts behind in the cracks and then risen to the surface, now superheated and filled with hydrogen sulfide gas from the magma chambers. En route to the surface, these hot fluids leach elements out of the ocean crust - elements like iron, copper, zinc, and even gold. When these fluids exit vents in the seafloor and mix with the cold water there, the metals get together with the sulfur and sulfide minerals precipitate out creating mineral deposits (much like mineral deposits left behind in your water pipes). These mineral deposits grow over time into large chimneys that extend above vents in the seafloor. As previously mentioned, the hydrogen sulfide acts as an energy source for the chemosynthetic bacteria that support an exotic food web and ecosystem that is located immediately around this vent. Giant tube worms collect gardens of these chemosynthetic bacteria within their bodies. The tube worms feast on the garden and the garden is fertilized by the waste of the tube worm and receives gases as the tube worms extend over the vent and soak up the hydrogen sulfide gases escaping. Both the bacteria and the tube worms that act as their hosts are known as extremophiles because they can handle extreme temperatures. The vent fluids can be between 350 and 400 degrees Celsius. Other animals that live around vents feed off the bacteria as well, the worms, and each other.

Pause Now.

## Hydrothermal Vents

Produced by Katryn Wiese  
City College of San Francisco

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