

# What are the different kinds of Hydrothermal vents?

There are two distinct kinds of hydrothermal vents. Scientist call them “white smokers” and “black smokers.” Just like their names, they appear to be emitting white or black smoke.

## What makes them different?

white smokers:

Temperature:  
250-300\* C

Height:  
50cm- 60 feet tall

Typical Chemicals  
released from  
vent:

White smokes are  
rich in barium,  
calcium, and  
silicon.

black smokers:

Temperature:  
200-400\* C

Height:  
Up to 180 ft tall!

Typical chemicals  
released from vent:  
Black smokers have  
a very high metal  
composition,  
releasing iron,  
copper, zinc, and  
more!

## Work Cited:

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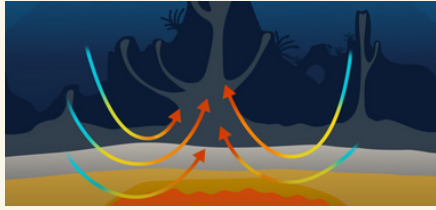
<https://adsabs.harvard.edu/full/1990AREPS..18..173V>

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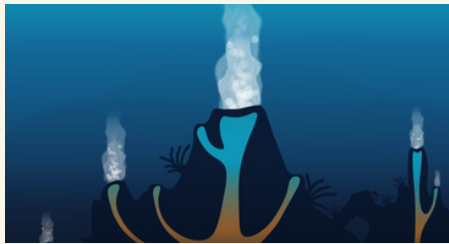
# Hydrothermal Vents

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## How are they formed?



Hydrothermal vents are created when ocean water seeps into thin layers of the ocean floor and is heated by a magma chamber. This is known as a fissure which is a long narrow opening in the Earth's crust.



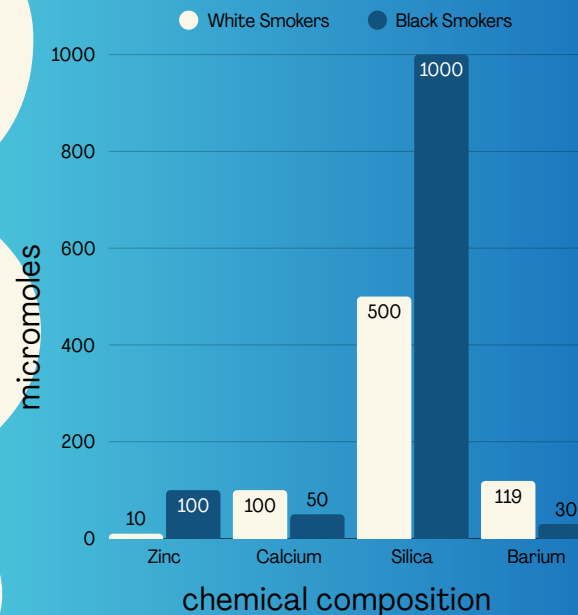
The water and minerals are then pushed out the chamber, cooling and solidifying to create the vent structure.

## Research Question

What about the differences in Hydrothermal vents? Is there a reason why different types are formed? We hypothesized that something in the chemical make up of the magma or thinnest of the crust determines the differences between the two types.

## Fun Facts:

- Hydrothermal vents are sometimes named after characters!  
Examples : Godzilla, Homer Simpson, Scooby , Hulk, ect.
- When vents are cooler and have weaker flows, it is called a "seep"
- At approximately 400\*, black smoker's vent fluid is hot enough to melt metal.



## Interpretations:

There is a distinct connection between temperature and the make up of hydrothermal vents. Since the process of creation relies so heavily on saltwater going into a magma chamber, heating up, and dissolving minerals as the fluid gets pushed out and through the Earth's crust.

When water is heated at a higher level, it is able to pull different minerals than ocean water that cools to quickly or does not hit higher temperatures. This directly effects the pressure/flow in which the hydrothermal fluid is being pushed out of the vents, changing the height and construction of the vent.

## Methods:

Analyzing reliable resources to gather information and data about different types of hydrothermal vents. Using that information to come up with conducive conclusions and interpretations.