

# Hydrothermal Identification Cards

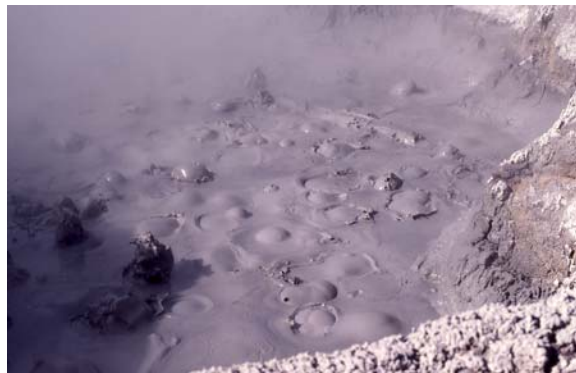
## HOT SPRING

Hot springs are the most common hydrothermal feature. A hot spring has an open plumbing system and the superheated water is able to rise freely to the surface. Superheated water cools as it reaches the surface and is replaced by cooler water from below. This convection prevents water from reaching temperatures high enough to trigger a geyser eruption.



## MUD POT

Mudpots are acidic hot springs with a limited water supply. Some microorganisms use hydrogen sulfide gas as an energy source and help to convert the gas to sulfuric acid. This acid chemically decomposes the surrounding rock into clay, thus creating a mud bath. Various gases escape, causing the mud to bubble. Mudpot activity varies with the season and precipitation.



## **GEYSER**

Geysers are hot springs with tight places, or constrictions, in their plumbing that prevent water from circulating freely to the surface. Although the water's temperature may be much greater than the surface boiling point, the surrounding pressure of the overlying rock and water prevent the water within the system from boiling. As the superheated water rises, steam forms. The steam expands as it nears the top of the water column until the bubbles are too large and numerous to pass through the tight spots. The steam bubbles begin to move about violently and eventually lift water through the constriction. This instantly lowers the pressure within the system. Much of the water flashes into steam, which forces the remaining water out of the geyser's vent.



## **FUMAROLE**

A fumarole, or steam vent, is the hottest hydrothermal feature in Yellowstone National Park. The water in a fumarole's plumbing is limited. The water converts to steam before it reaches the surface. The result is the emergence of escaping gases.

