Old Faithful Geyser

Symbol of Yellowstone National Park

Yellowstone National Park
P.O. Box 168
Yellowstone, WY 82190
307-344-7381 • www.nps.gov.yell

About Old Faithful Geyser

A splash, maybe a teasing big splash . . . and then, a towering column of water surges out of the earth. Old Faithful is erupting, as it has for more than 125 years. Eruptions occur an average of 17 times per day, every day. Because of changes in circulation that resulted from the 1959 Hebgen Lake and 1983 Borah Peak earthquakes, as well as other local and smaller earthquakes, the average interval between eruptions has been lengthening during the last several decades. In the past, Old Faithful displayed two eruptive modes: short duration eruptions followed by a short interval, and a long duration eruption followed by a long interval. However, after a local earthquake in 1998, Old Faithful's eruptions are more often of the long duration, long interval type.

Other great geysers are dormant for months or years between their periods of activity, yet Old Faithful has not stopped in historic times. Other geysers erupt to greater heights, and a few are more predictable. However, careful observations of each Old Faithful eruption enable interpretive rangers to predict the next eruption.

Old Faithful—Vital Statistics as of 2010

Height of eruption	106–184 feet (32–56 m) Average = 130 feet (40 m)
Duration of eruption	1.5–5 minutes
Interval between eruptions	
If eruption lasts less than 2.5 minutes	60 minute interval
If eruption lasts more than 2.5 minutes	90 minute interval
Temperature	203°F (95°C) just prior to an eruption (water boils at 199°F/93°C at this altitude [7,366 ft/2,245 m])
Volume of water in an eruption	3,700–8,400 gallons (14,000–32,000 liters)

Geyser Essentials

In order to exist, geysers need:

Heat

Magma (partially melted rock) is the source of heat for geysers and hot springs. The heat is transmitted through solid rock and fluid substances to water that has seeped to depths as great as 10,000 feet (3 km) below the surface. The water temperature can exceed 400°F (204°C).

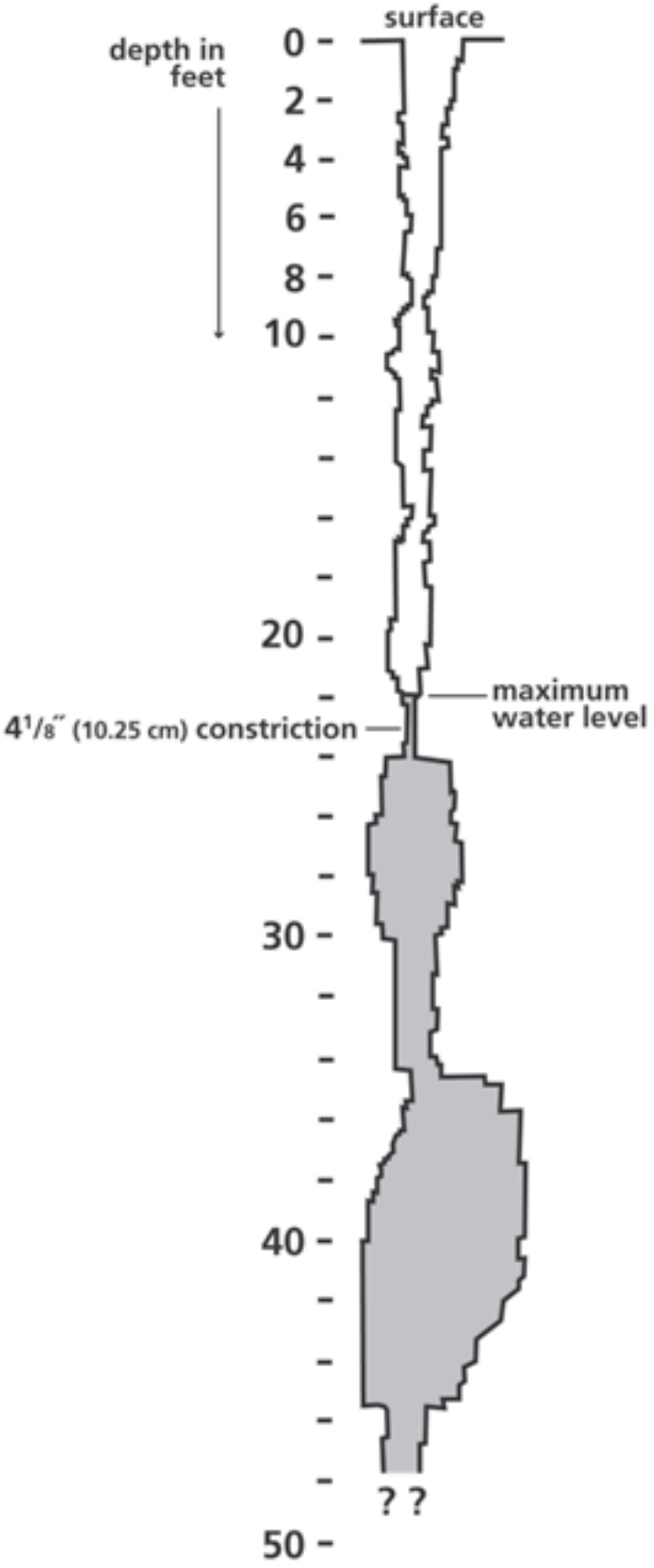
Water

The tremendous amounts of water that erupt from Old Faithful, Giantess, Grand, and other major geysers show that large volumes of water move rapidly throughout a geyser's natural "plumbing." The water comes from one or more porous, permeable beds of rock, called aquifers. It is believed that almost all of the water in geysers and hot springs comes from surface water such as rain and snow.

A constricted "plumbing system"

In Yellowstone's hydrothermal areas, the underlying rocks contain fractures through which water circulates from deep within the earth. High temperatures dissolve silica and other minerals in the water, which coat the plumbing. If a constriction develops in the plumbing, a geyser may result.

Old Faithful's Plumbing



Geyser tubes or "plumbing systems" are not uniform in shape. They are usually crooked or constricted in many places. Measurements of Old Faithful's conduit reveal a constriction at about 22 feet (6.7 m).

No two geysers erupt alike because of variations in heat flow, water movement, and plumbing systems.

Notice the size of the constriction in Old Faithful's plumbing—rocks, sticks, and other objects could easily clog it, thus altering or stopping its eruptions.

It is illegal to throw anything in Yellowstone's hydrothermal features.

Geysers are rare and beautiful. Treasure and preserve them!