

Mineralized wood samples show Old Faithful once stopped erupting for several decades

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A team of researchers with the U.S. Geological Survey, Lone Pine Research, the University of California and the Yellowstone Center for Resources, has found evidence that the famous geyser Old Faithful in

Wyoming's Yellowstone National Park quit erupting for several decades approximately 800 years ago. In their paper published in the journal *Geophysical Research Letters*, the group describes their study of mineralized wood samples found in the area.

The Old Faithful geyser has become popular due to its regularity—it erupts approximately 20 times every day giving spectators a demonstration of nature's power. Geothermal heat activities belowground thrust water and steam into the air. The cycle is due to vapor leaking out of underground cavities, which reduces the pressure inside of them, allowing the water to boil and eventually spewing it out of a hole in the Earth's surface. But the geyser has not always been so faithful, the researchers with this new effort learned. For several decades during the period 1233 to 1362 CE, the geyser went silent due to an extended drought.

Prior research has shown that a major drought occurred in the area approximately 800 years ago and it had lasted for at least several decades. The researchers wondered what impact such a drought might have had on Old Faithful. To find out, they canvassed the area around the geyser and found multiple samples of mineralized wood. Carbon dating showed that the trees from which they had come were growing during the drought period, and the number of rings showed that they had been growing there for several decades, suggesting that the geyser had stopped erupting. Trees are not able to grow around the geyser when it is active due to regular eruptions of hot, alkaline-rich water to the surface. For [trees](#) to have been growing there, the [geyser](#) must have been silent for a long period of time.

The researchers note that their findings have relevance today—[climate scientists](#) have been predicting higher temperatures and more and longer droughts in coming years due to [global warming](#), events that could ruin Old Faithful's reputation for regularity.

More information: Shaul Hurwitz et al. Yellowstone's Old Faithful Geyser Shut Down by a Severe 13 th Century Drought, *Geophysical Research Letters* (2020). [DOI: 10.1029/2020GL089871](https://doi.org/10.1029/2020GL089871)

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