Monitoring Volcanoes Unit 3: Conspiracy Theorist Letter assignment and rubric

Michael Poland (USGS), Kaatje van der Hoeven Kraft (Whatcom Community College), and Rachel Teasdale (California State University, Chico)

## Purpose:

This activity will help you apply the data you interpreted from Yellowstone data for volcano monitoring to make an argument to a non-scientist. Communicating complex information to a non-expert to be compelling for a skeptical audience is an important skill.

## Knowledge:

From this activity, you will be able to:

* articulate that magmatic activity would be supported by consistent signals from multiple data types
* communicate the probability a volcanic eruption based on data as appropriate for a non-expert
* develop a strategy for communicating an evidence-based argument in an approach that considers who the audience is and how to connect with their values

## Task

Below is a letter similar to many received by USGS scientists working at Yellowstone Volcano Observatory. Respond to the letter as if you were a USGS scientist based on your work from in class as well as more recent data posted here: [*https://volcanoes.usgs.gov/volcanoes/yellowstone/monitoring\_map.html*](https://volcanoes.usgs.gov/volcanoes/yellowstone/monitoring_map.html)

USGS Scientist,

Steamboat geyser has erupted 20 times between May and late September 2018, based the seismic signal reported by the University of Utah.  On September 30, 2018, the same exact signature was found on those same seismograms of Norris Museum.

Why hasn’t the USGS confirmed a 21st eruption at Steamboat geyser? Are you too worried about causing a public panic? Is the truth not important to you? Maybe you don't monitor the park closely enough to see that there has been another eruption? Are you dishonest, or just incompetent?

With all due respect, what are you thinking? Are there gas readings being done at Steamboat to know if you are seeing H2S or SO2? What if Steamboat is about to experience a hydrothermal explosion?

What will it take to close the area around Norris as a precaution until you know what is happening there? You are putting people's lives at risk by not being honest about the danger posed by the rising magma, which is clearly indicated by all of the earthquakes and uplift across the park.  We need people to investigate this situation. I would certainly expect that the USGS would inform the public of any dangers, rather than hiding the truth, like you do so often with earthquakes.

Respectfully,

Anonymous

## Criteria:

Your response letter will be graded on the follow criteria. Full credit for each element is 3 points.

3 points = fully addresses the element
1–2 points = partially addresses the element
0 points = does not address the element

Elements to include:

* Writing style is clear, concise, and appropriate for a non-scientific audience.
* Writing tone is respectful, even when disagreeing with the letter writer.
* Response aims to connect with the writer’s values.
* Response explains why multiple types of volcanic monitoring data are needed to determine eruption hazard.
* Response includes description of several types of current monitoring data.
* Response explains how those data allowed scientists to arrive at the current hazard level.

## Other information:

Keep in mind that sometimes you need to appeal to more than just facts to help convince a person (for example, the Global Weirding video from Katherine Hayhoe describing the social science behind and how to move beyond just facts to create a more convincing argument: <https://youtu.be/nkMIjbDtdo0>.