

## PLANETARY GEOSCIENCE RESEARCH PROJECT

### PART III – WRITING AN EXTENDED ABSTRACT

---

**Objective:** One of the major components of your grade in this course is an independent research project on the topic of **terrestrial analogs**. A terrestrial analog is an earth-based location that is used to study phenomena observed on other planets, moons, or rocky bodies of the solar system. The dry valley deserts of Antarctica, for example, serve as terrestrial analogs for cold, arid conditions expected on Mars. Likewise, volcanic terrains on Earth are a natural laboratory to learn about igneous processes operating on Venus.

The purpose of this exercise is to present your research results in an extended abstract, a short narrative that describes a scientific topic or hypothesis, the data that's been analyzed, and the scientific conclusions that have been drawn. At the end of this exercise, you should be able to:

- Use a template to format an extended abstract for a professional scientific conference.
- Cite relevant sources and summarize previous work on a scientific topic.
- Describe a planetary geologic process operating on a target solar system body
- Identify an appropriate terrestrial analog that has been observed on Earth
- Discuss the similarities and differences of the planetary process and the process operating on Earth
- Draw (broad) conclusions about the nature of geologic phenomena operating on other bodies in the solar system.

**Note that no earth analog will be a perfect match to processes operating on another solar system object. The objective here is to characterize how geologic processes on two bodies (the Earth and a target) will be similar and how they will differ.**

---

### INSTRUCTIONS

1. Download the file Abstract\_Template from iLearn.

This is the standard extended abstract template used for meetings like the Lunar and Planetary Science Conference and Planetary Geologic Mapper's Meeting. You are welcome to work on drafts of your abstract in another document, but please turn in the final abstract using this template.

2. Use the following general outline for writing your extended abstract.

**Title and Author** – Select a title that conveys your topic in a short, succinct phrase. The ideal title should include the target body, geologic process of interest, and/or the earth analog location.

**Introduction** – The introduction should summarize research about the target body and the geologic process of interest. Why is this process interesting? What do we already know about it, and what remains to be learned? Is it a common process on bodies in the solar system? Is it unique to only the body you're studying?

**Geologic Process (Data)** – Use this section to provide a detailed description of the geologic process you are studying. For example, if studying massive craters on the southern pole of Vesta, describe the size, shape and depth of craters as well as any other information about crater fill, etc.

**Terrestrial Analog (Data)** – Identify a terrestrial analog and provide a similarly detailed description for the analog location, dimensions, composition, etc.

**Discussion** – Compare and contrast your observations about the process and the terrestrial analog. What might the similarities tell us about processes in the solar system? How do the targets differ, and is there anything valuable that can be learned by studying the differences?

**References** – Cite references as appropriate in the abstract and use this section to make an abbreviated list of references. Only include references that you cite in the extended abstract!

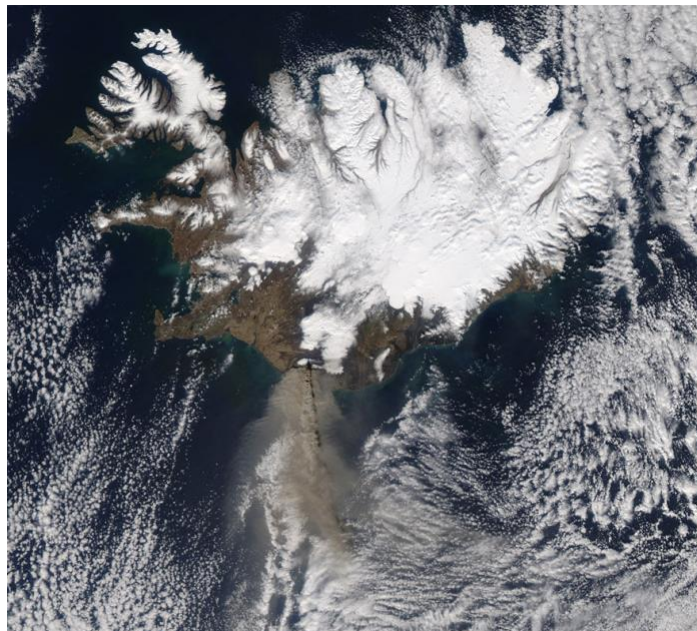
3. Design at least 2 figures to include in your extended abstract and include figure captions.

**Figure 1** – Provide a figure that illustrates the geologic process. For example, if discussion cryovolcanic eruptions on Io, the following figure would be appropriate. Note that the figure caption should include information about the image ID, the spacecraft that took the image any other relevant information.



*Processed image PIA01081  
from the Galileo  
Orbiter illustrating eruption  
of a volcanic plume on Io.*

**Figure 2** – Provide a figure that illustrates the geologic process on the terrestrial analog. For example, if using an earth-based volcano as an analog, an image of the volcano. Be sure to include source information for the image and do not use personal photographs. Satellite imagery, Google Earth imagery and/or other image databases are acceptable.



*Eruption of the Icelandic  
volcano Eyafjallajökull in  
2010, as recorded by the  
NASA Aqua satellite.*