

Final Report for 5B

Briggs Elementary School in Ashburnham, MA

I. Introduction

We want to know where has the water on Mars gone? This question is important and interesting because:

- Water is one of the conditions needed for life. (#19-
http://www.nasa.gov/audience/forstudents/k-4/home/K4_LifeonMars.html)
- Water on Mars could mean life on Mars. That would be cool!!!!

Our hypotheses:

- The water on Mars might have gone underground.
- If there was underground water on Mars then you should see features like geysers on the surface.
- There would be lots of water features like water channels, streamlined islands, and slosh (rampart) craters created around the geysers when the water came shooting out.

II. Background

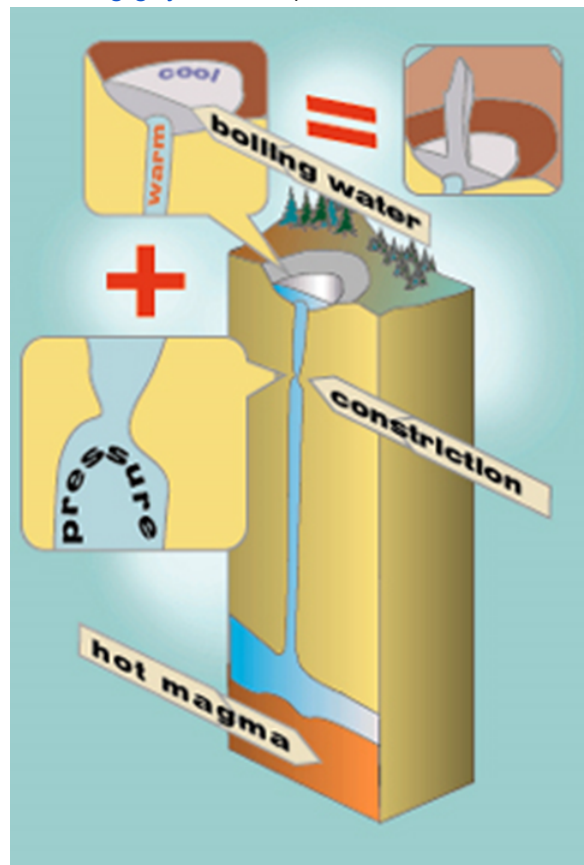
Water on Mars

- Lots of people think Mars used to be warm and wet. (#18-
<http://quest.nasa.gov/aero/planetary/mars.html>)
- There are features on the surface that show there used to be water there like channels , gullies and alluvial fans. (#5-10-<http://en.wikipedia.org/wiki/Mars>)
- Curiosity found rocks that were formed in water (#3-
<http://www.cnn.com/2012/09/27/us/mars-rover-water/index.html?iref=allsearch>)

- Except for the polar ice caps you can't find any water on Mars now. (#17- http://www.windows2universe.org/kids_space/lifeonjupiter.html)
- Liquid water cannot exist on the surface of Mars due to low atmospheric pressure (#5- <http://en.wikipedia.org/wiki/Mars>)

Underground Water on Earth

- On earth, a geyser usually starts as a hot spring. The water boils and there is pressure. Water from underground gets pushed up by the pressure and water and, or steam shoots out! (<http://vislab-ccom.unh.edu/~schwahr/yellowstone/WhatIs/index.html>)
- There are two kinds of geysers that are made this way, cone geysers and fountain geysers. Cone geysers poke up out of the ground like volcanoes. Fountain geysers are holes in the ground.
- (<http://www.unmuseum.org/geysers.htm>)

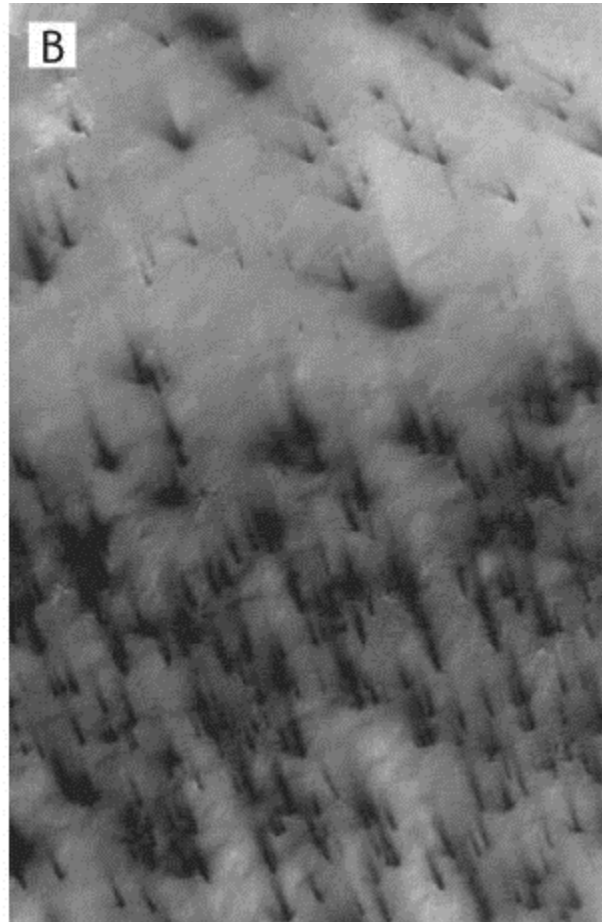
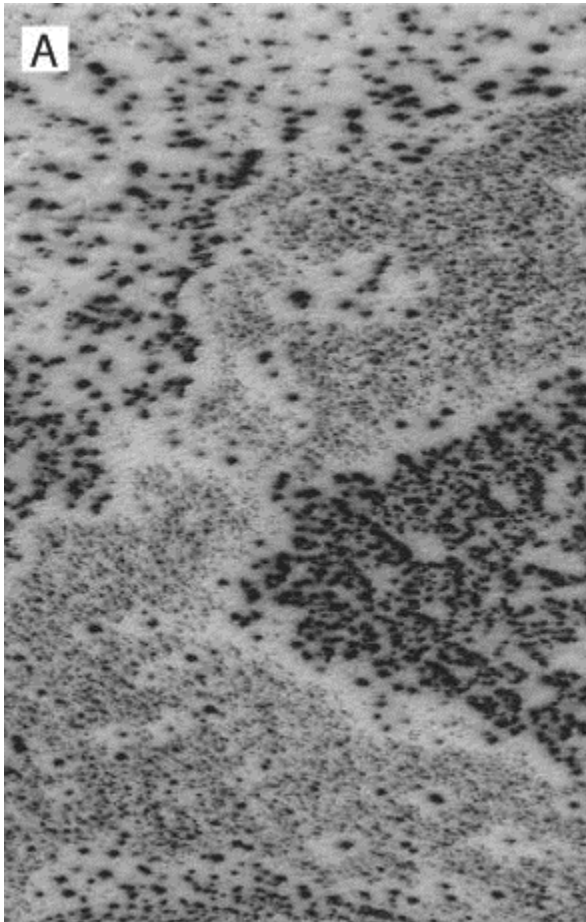


<http://vislab-ccom.unh.edu/~schwahr/yellowstone/WhatIs/index.html>

- Sometimes but not very often geysers on earth happen when carbon dioxide ...
- A lot of what makes a geyser a geyser is underground so hard to see on surface.

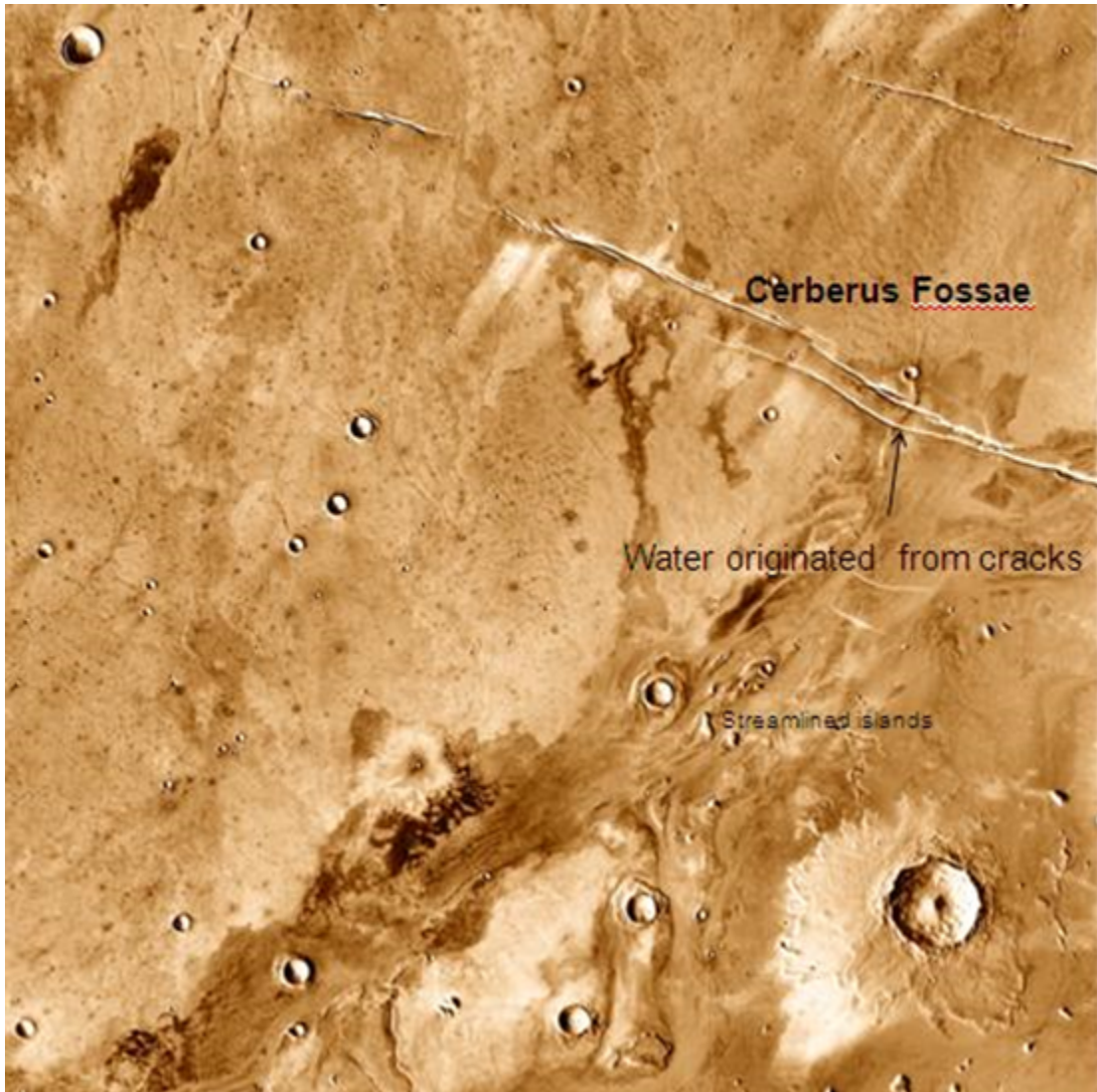
Underground Water on Mars

- NASA thinks it found a geyser on Mars at the polar ice cap. Scientists think the black spots are sand and dust from where a geyser sprayed carbon dioxide gas out of the ground.



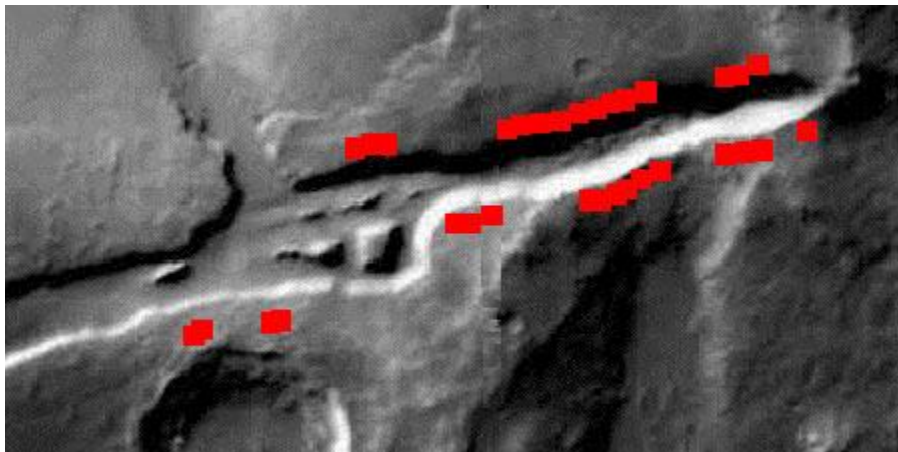
<http://www.redorbit.com/media/uploads/2006/08/9bbc9448669d98c4f1498cec4d753a3e1.jpg>

- There are two other places on Mars where scientists think they may have found geysers, Cerberus Fossae and Mangala Fossa. Volcanic activity made trench or fossae. But then water not lava came flowing out.



http://en.wikipedia.org/wiki/Athabasca_Valles

- This is Cerberus Fossae. Water sprayed out of the trench and flowed down. You can tell the direction by looking at the streamlined islands.



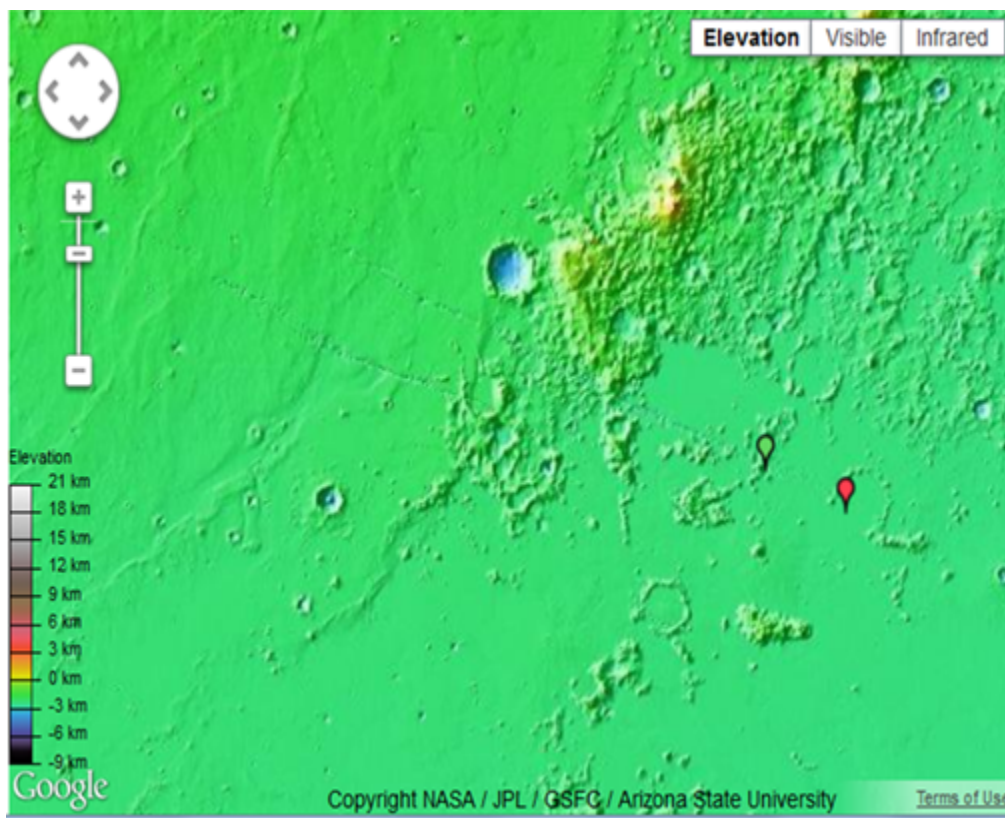
<http://www.newscientist.com/article/dn13480-fizzy-water-powered-super-geysers-on-ancient-mars.html>

- This is Mangala Fossae. Scientists think the red shows mud that shot out of the geyser and the ridges were made by flowing mud.

III. Methods

Where on Mars will we look?

- We voted to look for underground water in volcanic regions of Mars not polar ice caps because more heat there.
- We wanted to look for geysers, but learned that they were too small to show up in the Themis images. So we decided to look for water features that would be created when water came shooting out of the geyser.
- We wanted to look at Cerberus Fossae and Mangala Fossa but only had time for Cerberus Fossae.



This is a picture of Cerberus Fossae. We could look here for underground water on Mars. We could look around the trenches for:

- Water channels
- Streamlined islands

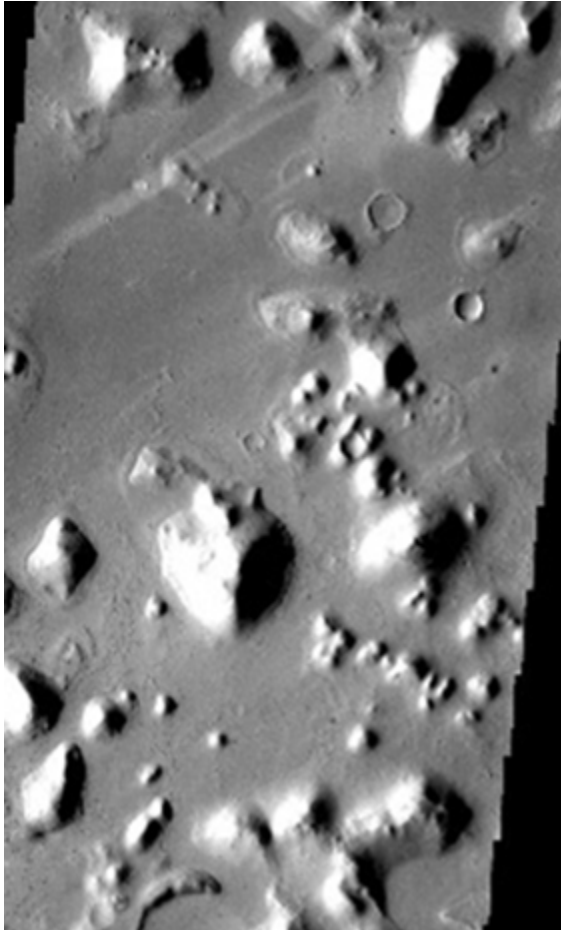
•Slosh (rampart) craters.

1. First we went on onto JMARS.
2. Then we went to Cerberus Fossae.
3. Then we looked at Themis Images.
4. After looking at some pictures we found a water channel so we went in the same direction looking at the water channel until the images stopped.

Controls

We used the feature identification chart in the MSIP student guide to help make sure that we were identifying features correctly.

Streamlined islands are islands where a stream has flowed past creating a small island, or a big island depending on the flow of water. They have a bigger end where the water went around and then a smaller end where the water comes back in towards the other flow of water that got split at the beginning of the island.



A water channels is a piece of land that makes us think that it may have been a river or had a flood/ tsunami. That river/flood/tsunami could have cut through the land near it with a consistent flow of water.



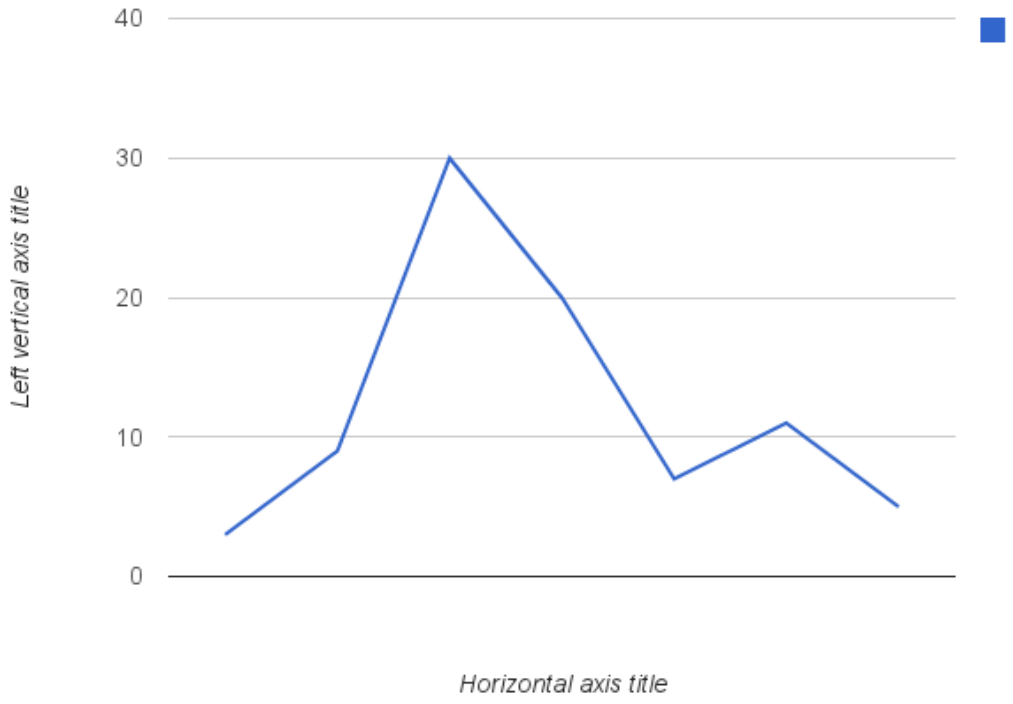
A rampart crater is a special kind of crater, on which the *lobate*, a special kind of ejecta, looks like it flowed away from the crater.



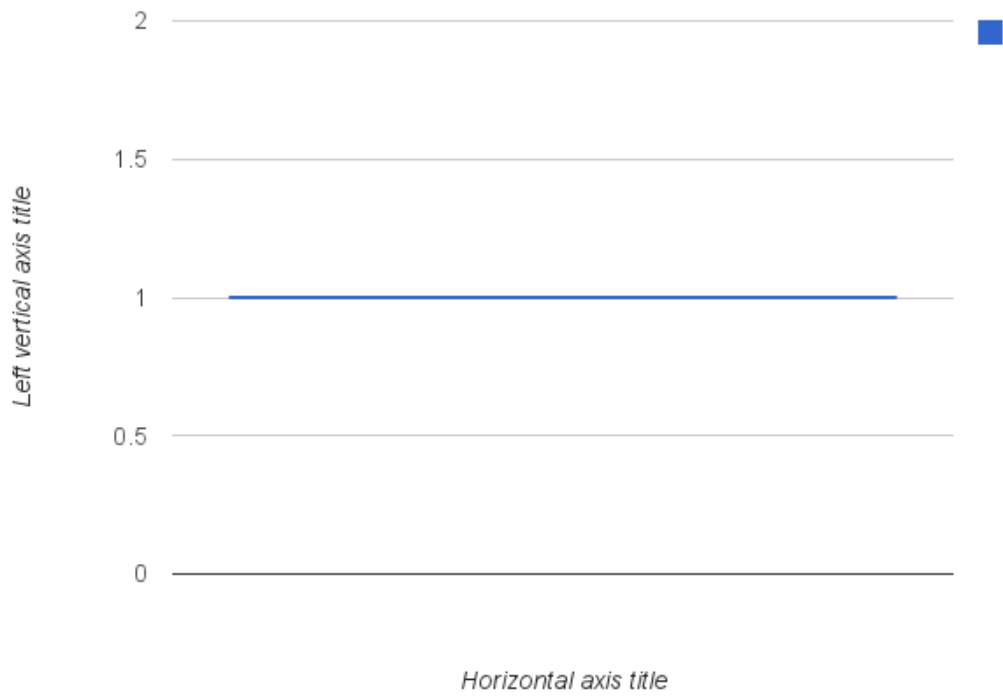
IV. Data

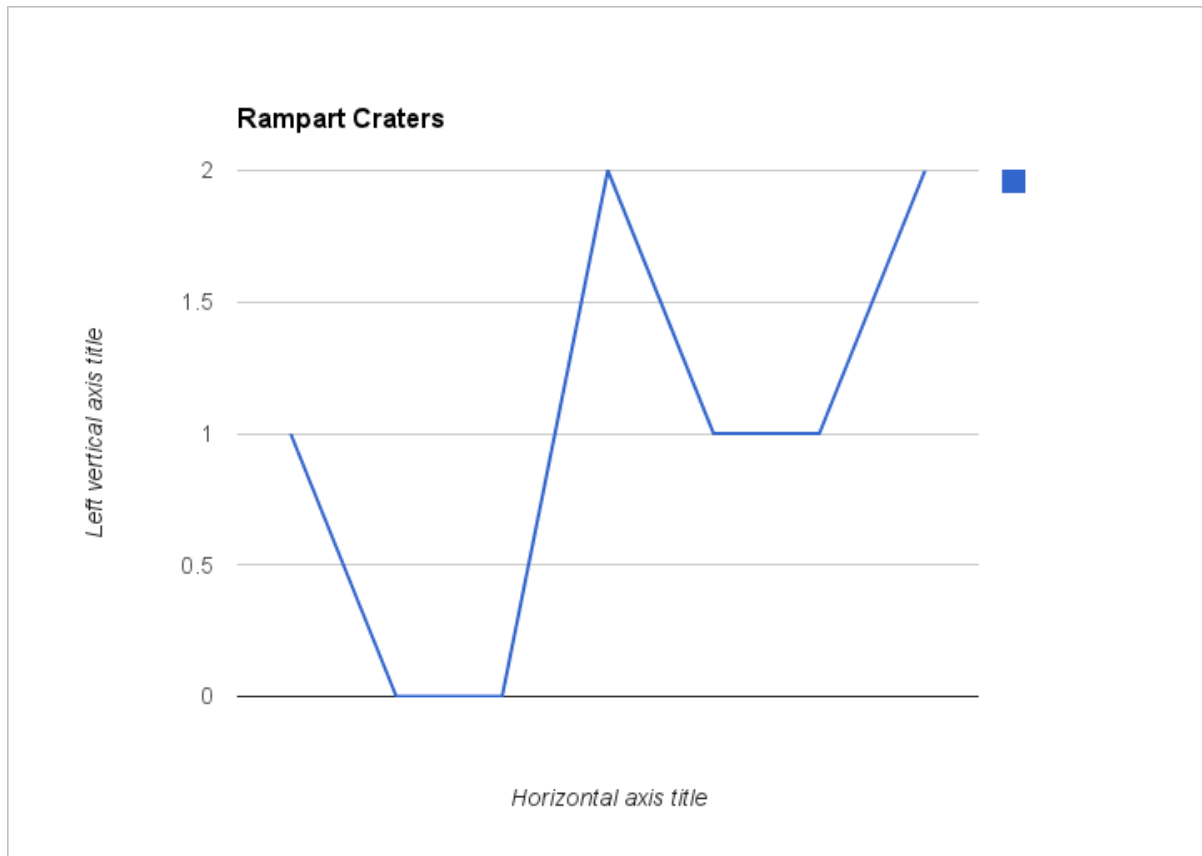
VIS# (picture ID)	Latitude	Longitude	Streamlined Islands	Water Channels	Rampart Craters
V43798005	11.370711	166.37546	3	1	1
V38569007	11.5071	166.84253	9	1	0
V26940033	12.050729	167.28539	30	1	0
V27227022	12.37811	167.47534	20	1	2
V39118044	11.847332	168.24704	7	1	1
V05986005	13.203445	167.47012	11	1	1
V27539028	10.761709	166.18405	5	1	2

Streamlined Island



Water Channels





V. Discussion

We believe we found a water channel. There were streamlined islands and a couple of rampart craters. We may even have found what looks like a lake! At least we hope so, but we can't be too sure.



VI. Conclusion

- Was there underground or aboveground water on Mars was our science question. The scientific data may prove this true. We found streamlined islands, what we think are channels, and a crater that we think could've been a lake. These are only thoughts, but still could be useful. We think the crater was a lake because of how flat and smooth it was. Not completely, because of the wind, but mostly.
- Some future research could be done, and that would be taking more pictures following the flow of the water, to see if it leads to anything.
- Some people that helped were Mrs. Davis, and Mrs. Bennett. Also, someone in our class, Sean helped on the first part. But most of it was done by Liam, Abbi, and Joey.

Targeting

When we were looking at the pictures for this presentation, we found what looked like a water channel coming from the northeast. We continued up the line of pictures and agreed that it was a water channel. We saw a lot of streamlined islands flowing from that direction. All the data we found on our data table was recorded from that channel. We kept going and the pictures

stopped. We would like to focus on the spot where the pictures end. Which was at the longitude and latitude of: 167.805°E 12.461°N

VII. References

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