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Astronomy

**Geology in Terrestrial Planets**

In this reading a learned a lot of the geology of different terrestrial planets, and their history on how they were formed. I also got to read more about the moon and its structure and how it was composed.

When looking at the moon we can see that its era of geology is past gone. Since it is a small planet its core has cooled off and no more volcanic activity has happened there is also no sign of movement from plates since it has all solidified. It does however show sings of collision from studying some of its craters. Aside from this we can still recognize that the some of these bright heavily cratered areas are lunar highlands, and the smooth dark regions are lunar *Maria* whish get its name from Latin that stands for ocean.

Mercury is another planet that is very similar to moon; Even though it is bigger than the moon it is still considerably small. Mercury has a couple of craters crowded together. This region is often recognized as *Caloris Basin*. The *Caloris Basin* spans more than half of mercury’s radius. Some of these craters have craters within in them. Mercury has tremendous cliffs. It also shows evidence of plate tectonics. However they do seem different compared to other planets. This may have been caused when the planet began to cool off. It is very possible that it shrunk in size and therefore contracted and caused a couple cliffs to be formed vertically. The creaters in Mercury suggest that most of its volcanic and tectonic activity ceases one or two billion years ago.

Later on I discovered a more popular planet, Mars. Mars is very popular because it holds many similarities to planet Earth. Some of these similarities include its axis tilt, as well as length of day which is a bit greater than 24 hours, but nonetheless very similar. Its biggest factor however is probably the *polar ice caps* it holds both one at top and bottom, similar to the one planet Earth has. Mars has ¼ the surface area when compared to Earth; however, in terms of land (solid ground) it is about the same, since *Earth* holds a lot of water. Mars also is the home to the largest volcano. *Olympus Mons* is the tallest volcano in our solar system. Its size is about 3 times larger than Mt. Everest. In addition there is a place in Mars named *Tharsis Buldge* which is the home of many volcanoes in Mars. Mars has many characteristics that make it relatable to us, and that is why it has had so much exposure in the media. Aside from this the biggest attribute that shows the possibility of life in Mars is taking a look up close, and acknowledging that there seems to be evidence of past erosion. Erosion that symbolizes the possibility that there was once water in the planet, the polar ice cap also supports this idea.

Another planet I got to learn about is Venus, often referred as the sister planet of Earth. Venus is about the same size of Earth. In addition it has a very similar density, but there is ample some of evidence that indicates that it is different. Venus is a terrestrial planet with thick clouds, the land in Venus is somewhat similar to Earth’s it does not have a multitude of crater, which shows that it wasn’t hit much and it shows a lack of small craters. The surface of Venus appears to be extensively contorted and fractioned. Venus also indicate that it is geologically active. We can also hypothesis that Venus has had volcanic activity because there is Sulfuric acid and sulfur dioxide in the atmosphere.

Lastly the book talks about how unique planet Earth is, as it is the only planet with ramped erosion. It is also the only planet shaped primarily by ongoing plate tectonics. The earth lithosphere is broken up to more than 12 pieces Earth also has two different types of crust. There is a thin crust that is about 5-10 km thick, which is found in the ocean, and their *continental crust*, which is much thicker. We also can see how volcanoes have shaped our planet and even given birth to new land such as Hawaii.

In conclusion this reading made me reflect a lot in the shape of each planet. And has really made me wonder what each physical attribute of the planet tells us about its past history.

2.) Yes it is very possible. Venus is indeed a planet that is geologically active, so it is possible of sedimentary rock formation.

3.) There is evidence showing that there was once water in Mars; however, mars pressure at the moment is not adequate for water. Mars pressure would just cause the water to evaporate.

4.) Really tough question. A planet similar to Earth would have a higher density and bigger mass therefore it would take longer to cool off. The reason craters exist is because some of these planets have finished cooling off and have no volcanic activity or any help that would would get rid of these craters. Planets that are geologically active seem to have less craters. Planets that are geologically active are bigger planets that have not completely solidified.

5.) No very unlikely. The reason why we have such a difference is because we faults or crevices where the earth breaths in some sense and creates these ridges that expand the ground oppose to increase in height, like volcanoes.

6.) How did water form? Did we have less or more water at the begging of time?

How come not all mountains are volcanoes that could erupt?