

Mars for Earthlings

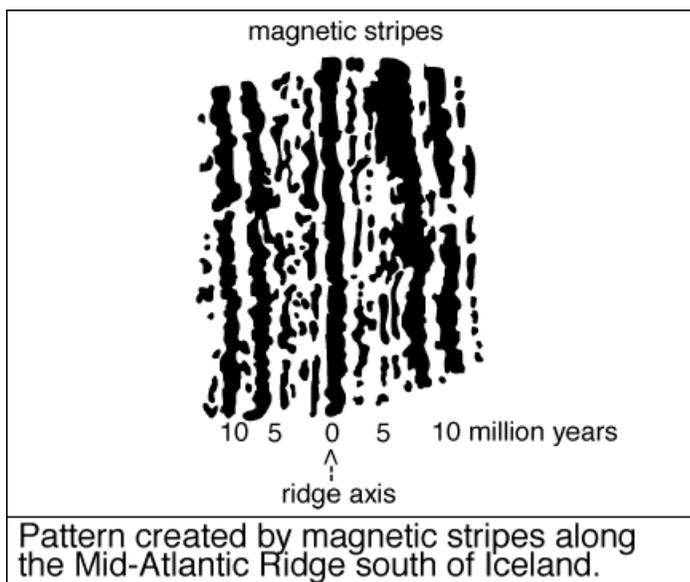


Figure 1 Source: http://www.london-oratory.org/chemistry_folder/Revision/Earth&Rocks/New/student%20workbook%202.htm

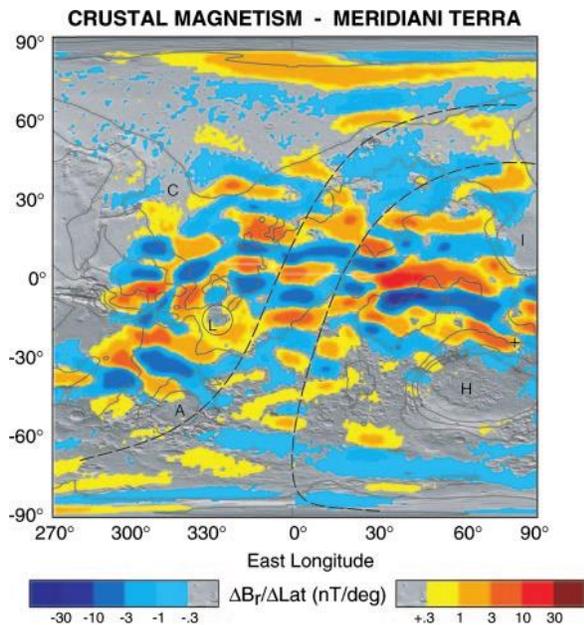


Figure 2 Crustal magnetism at Meridiani Terra Mars. Warmer colors are positive anomalies (Connerney, 2005*).

* Connerney, J.E.P., et al., 2005 Tectonic implications of Mars crustal magnetism: PNAS v. 201, p. 14970-14975.

7. Describe the crustal magnetism of Mars at Meridiani Terra (Figure 3). Do you see any banding? If so, what is the orientation?



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Recording changes in the EM field on Earth

Different stations on Earth are recording the changes in Earth's electromagnetic field. One such station is found in Sweden.

8. Navigate to the following website:
[http://www.irf.se/Observatory/?link\[Magnetometers\]=Data/](http://www.irf.se/Observatory/?link[Magnetometers]=Data/)
9. Note the legend and discuss the "description" tab. What do the X, Y, and Z data represent in the graphs?

10. Why is there activity in the data?

The Real Question

11. Does Mars have a magnetic field and what studies in the future could reveal new discoveries about the potential for Mars to have had a magnetic field in the past?



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Homework 1

The Active Interior and Valles Marineris

Valles Marineris vs. The Grand Canyon

Preparation

- Have access to Google Earth and Google Mars

Comparing dimensions

Using Google Earth and Google Mars, compare the length of Valles Marineris (VM) to the Grand Canyon (GC) using the ruler tool [button with a ruler on it in top task bar].

1. Valles Marineris (take the longest axis measurement you can) _____ mi
2. The Grand Canyon (start: Marble Falls, AZ; end: beginning of Lake Mead) _____ mi
3. How do their lengths compare? Find a comparable landmass on Earth that would be close to the length of Valles Marineris.

Depth of the Canyons

Using Google Mars, find Candor Chasma and make sure the colorized terrain map (layer in Global Maps) is visible.

4. What is the diameter of Candor Chasma (click on the dot/name)? _____ mi
5. Is Candor Chasma longer or shorter than the Grand Canyon?
6. How deep is Candor Chasma (use the colorized terrain map and/or ruler tool)?
Take 3 measurements trying to find the deepest points. Provide the average.
 - a. _____ mi
 - b. _____ mi
 - c. _____ mi
 - d. _____ average mi



