

Editorial

Short Notes on Planetary Geology

It was a hope to find out a science that brings together geology and cosmology until planetary geology appeared as a talented science, by Eugene Shoemaker in the sixtieth of the previous century. Planetary geology has successfully narrowed and reduced the distance between these two sciences.

Planetary geology is also called “astrogeology”, some others call it “exogeology” (see Wikipedia at: http://en.wikipedia.org/wiki/Planetary_geology). Several scientists prefer to study the basics of the “terrestrial and lunar geology” before proceeding with studying other planets of the solar system.

In the time where astrobiologists are working on extraterrestrial bodies to find out any kind of life outside Earth, astrogeologists are searching for all geological features that could be discovered from studying celestial bodies.

However, you may ask why we should study celestial bodies? Dr. Diana Siemens answered this important question by saying that “geologists are interested in other worlds for the sake of the knowledge itself and because the things we learn about other planets give us new insights into Earth’s geologic history and the processes that still continue today” (for more details on what Diana explained this subject, see the following site: <http://www.whfreeman.com/environmentalgeology/exmod36/planet.htm>). Dr. Ralf Jaumann stated that the key to understanding the geologic history and evolution of the early Earth is the knowledge of the origin and development of all bodies in the solar system (see: http://www.dlr.de/pf/en/desktopdefault.aspx/tabid-173/313_read-505/).

James Bell III et al. (1999), in Andrew N. Rencz (ed.), included planetary geology within the themes of remote sensing based on that most information obtained from studying geology of solar system objects is derived from remote sensing measurements. They added that except Moon, all measurements have been obtained either using ground-based or Earth-orbital telescopes or robotic space probes equipped with sophisticated cameras or spectrometers.

Workers on planetary geology assigned names for each branch that study one of the planets of the solar system, therefore the term heliology means the astronomical study of Sun; serenology is for studying Moon; areology is for studying Mars ... and so on.

Examples of using planetary geology in interpreting data related to the planets of the solar system include the following:
Studying the history and style of volcanism on Mars (Fuller, 2001; Head, 2001);
Understanding the history of water on Venus (Johnson and Fegley, 2001);
Collecting knowledge on the composition of Sun to understand the evolution of the solar system and how solar processes and solar wind mechanics behave (Kitts, 2009);
Determining the composition of the surfaces of outer solar system bodies (Adams et al., 2009);

It is important to note that one of the most interesting subjects related to planetary geology is studying the impacts between planetary bodies; this phenomenon is believed by many geologists to cause some of the recognized mass extinctions of the geologic history of Earth (see Elewa, 2008).

Understanding the geologic features of other planets of the solar system may help us to find ways to protect humans from the consequences of such geologic phenomena as earthquakes and volcanoes (see the website of Dr. Diana Siemens at: <http://www.whfreeman.com/environmentalgeology/exmod36/planet.htm>);

Developing preliminary geologic time scales for the planets of the solar system.

It is cheering, indeed, that Jordan will organize the First Arab Impact Cratering and Astrogeology Conference; 9th -10th November 2009. This step should be followed by successive steps to spread studying planetary geology in Africa and the Middle East. Of course, the tools for studying planetary geology could be one of the most important problems, especially in the developing countries, however we (African geologists) should send our young scientists to the international astrogeological centers all over the world to learn and gain experience, and we also can arrange conferences related to astrogeology in Africa to encourage famous astrogeologists to come to our countries for teaching and research. Moreover, I hope to see new African journals focusing on planetary geology and its related fields.

There are brilliant, young geologists in Africa who can compete with great geologists of the developed countries; just we try to guide them to the right way.

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