Grand Canyon Essay, Research Paper

Grand Canyon

Grand Canyon is one of earth s most spectacular nature phenomenon, that is also way it is one of the seven nature miracles. Grand Canyon is a very popular tourist destination and one of the most visited places on earth. What many visitors do not know is that the deepest canon in the world has been formed by the simple natural effect of erosion. There are of course a number of combined erosion processes that have created the canyon. The three main weathering processes that have formed the Grand Canyon are primarily water but also wind and ice.

The Grand Canyon is located in the desert of Arizona that makes the soil very hard and dry, leading to a weak absorption of water. The plants that grow in the Grand Canon have a very shallow root system because of the hard and dry soil but. Hard and dry soil result of the wind that takes away the softer parts of rock and soil, and leaves the harder layers. The Colorado River runs through the canyon and because of the shallow root system that cannot hold the soil in place the river takes soil and rock with it.

Stream transportation and erosion.

The stream transportation is the way the rock particles are being moved in the stream. Some lightweight particles can be carried in the stream in suspension. Because of the flowing water the small particles swift and turbulent in the water, this prevent them from sinking. Heavier rock fragments are being moved by a process called trac tion, this is when sand grains stones and small rocks are pulled by the stream along the streambed, making them roll and slide. The rock minerals that have been dissolved from land flows in the stream in solution.

When the particles are being transported in the stream they also erode the stream they are flowing in, cutting deeper into the land. Stream erosion has three main processes. The first process is the hydraulic action but also called hammer effect. The action occurs when stream is turbulent and riotous. When the waves in the stream splash against the sides of the stream the force of moving water loosens and carries particles away. The sec ond process is abrasion. The rock particles that are being transported in the traction process are scraping and scratching against the streambed slowly erodes it away. This is a very down-cutting process. The last erosion process is the corrosion. This process means that stream is able to wear down minerals and rocks dissolving them in the water. Acids can be created in the water because of the process of corrosion. An example of this is when water and carbon dioxide produces carbonic acid. This is called a weak acid. The acids eat the surface of the streambed making it weaker, this of course helps the hydraulic and abrasion process eroding even more.

Wind erosion

The wind erosion is not very significant but is a very consequential for the forming of the Grand Canyon. The wind erodes away the softer parts of rock and soil, and leaves the harder layers. This gives the plants a hard time finding soft ground for the roots, this leads to a very shallow root system that can not hold the soil when the Colorado River torrent. Deflation is the removal of loose, lightweight particles from the Earth s surface, by the force of wind. ( ) Deflation is most common on the windward sides of desserts. The deflation process of wind erosion corresponds to the hydraulic action of running water in stream beds (taken from page 197 in our ge ography book)

The erosion of ice

In the Grand Canyon winter months Canyon water seeps into cracks between the rocks. When water freezes it expands and pushes the rocks apart, even making the cracks more widen. Eventually rocks near the rim of the canyon are pushed off the edge and the rocks fall down into the slopes. This creates rock piles at the bottom of the canyon that are being pushed into the Colorado River. The smaller pieces of rock are slowly being pushed along the river, but the bigger pieces are staying in the river giving it resistance. The resistance is very important because of the fact that the stream must be turbulent for the suspension transportation witch leads to hydraulic action. This shows that there are many different weathering processes, but they are all important for the creation of the Grand Canyon.