

East africa's great rift valley: a complex rift system by james wood and alex guth...

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East Africa's Great Rift Valley: A Complex Rift System College A rift is defined as a crack in the earth's surface that widens over time. The rifting in Africa occurred over 30 million years ago reflected by the minor earthquakes and volcanic activity. The Great Rift Valley in East Africa comprises of two major rifts the Western rift and the Eastern rift with a third rift known as the Ethiopian rift. These three forms The Great Rift Valley and it is a complex rift that comprises of grabens along its major faults. Examples of grabens include Nyanza Rift and the Ethiopian rift. This report seeks to study and explore the East Africa Great Rift Valley.

The East African Great Rift Valley is complex due to many facts. It has old plates which are trying to create new plates. The rifting process is clearly displayed in this rift system. Nubian, the new plate which makes up most of Africa, the Arabian plate and the smaller Somali plate are pulling away in the Afar region of what is known as the 'triple junction'.

Its complexity is further demonstrated by its formation process. It is a 6000 mile fissure in the earth's crust stretching from Mozambique in Southern Africa to Lebanon in the Jordan Valley. Some scholars have presented different thoughts on how the Great Rift Valley formed. One school is that there was an elevated heat flow from the mantle caused bulges in afar and Central Kenya region. The bulges stretched the outer crust to form normal faults resulting in the formation of graben structures of the rift valley.

Others scholars hold that most of the bulges were formed by mantle plumes which are under the continents resulting in overheating of the overlying crust therefore expanding the fractures. The fractures occurred within a pattern of three fractures radiating from a point of angular separation. This

joint is called the 'triple joint' well illustrated by the Afar region (Kusky, 2010). The east African rift system is further complicated by the volcanic eruptions flowing over large areas and is normally exposed on the flanks leading to the stretching process. These eruptions are considered to be flood basalts after the lava erupts along the fractures to form sheets over the land.

The Great Rift Valley has many features with many lakes and rivers. The rivers, lakes and mountains are striking on how they illustrate the rift. The Eastern branch running through Kenya and Tanzania hosts Lake Victoria which is the largest lake in Africa.

The Western Branch, Albertine Rift runs through DRC, Uganda, Rwanda, Burundi and Tanzania. This rift is the complicated of the two with many faults that have formed the overall rift valley, has 32 basins and with horsts higher than the eastern rift. The western rift has a series of mountains with the famous Ruwenzori Mountains which are 120 km long. It also hosts various lakes with Lake Albert and Lake Edward as notable examples. There are also the Virunga volcanic mountains to its huge list of natural features.

The Eastern rift has further complicated the climate of the countries it passes through with the eastern rift having few high mountain regions while the Western rift has many high mountain regions with a more temperate climate. The Great Rift Valley is a complex system with the Western Rift consisting of deeper basins and the Eastern rift consisting of greater volcanic activity. The Great Rift Valley region is also important in understanding human being roots. This is due to the discovery of many human fossils in the rift valley region.

Reference

Kusky, T. M., & Cullen, K. E. (2010). Encyclopedia of Earth and space science. New York, NY: Facts on File.