Paper Number: 723

Somoto Grand Canyon (Nicaragua): a volcanic geoheritage one decade after the discovery

Žáček, V.[1], Hradecký, P.[1], Kycl, P.[1]

[1]Czech Geological Survey, Klárov 3, 118 21 Prague, Czech Republic, vladimir.zacek@geology.cz

---

Although a gorge in NW Nicaragua has been known for years only to the local residents of the surrounding communities, it was actually rediscovered recently, and turned into a tourist attraction of Nicaragua as the Somoto Grand Canyon (SGC). Geologists of the Czech Geological Survey were behind this rediscovery in 2004, due to the field geological mapping at a scale of 1:50 000 [1] that was undertaken in the frame of the Development Cooperation Programme of the Czech Republic, in cooperation with the Nicaraguan Institute of Territorial Studies (INETER) [2]. The SGC is located between 13-14°N and 86-87°W, 12 km W of Somoto town, the administrative centre of the Madriz Province, close to El Espino border crossing with Honduras. The W end of the canyon lies at the confluence of the Tapacali and Comali rivers, which is then called the Coco River, the longest river of Central America.

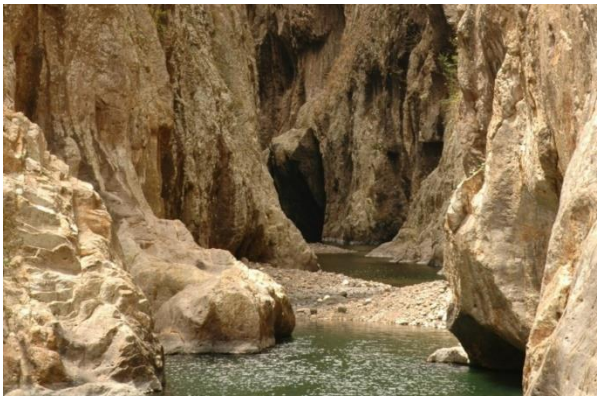

Figure 1: Somoto Canyon, Nicaragua in 2006

The SGC is an extraordinary gorge, 3.5 km long, reaching a width of 4-10 m in the narrowest parts, whereas the vertical walls attain a height of up to 190 m (Fig. 1). During its flow, the gorge uncovers a range of unique geomorphological and pseudokarst features, such as giant erosion potholes, and rock and sandy bars alternating with deep lagoons and cascades. As for geology, the area is related to the Eastern Chortis Terrane, which consists of low-grade metamorphic siliciclastic and carbonate rocks, intruded by Cretaceous plutons, and covered by Oligocene sediments and Neogene volcanic rocks [3]. Local geomorphology is controlled by several N-S and NE-SW trending normal faults related to intense tectonic activity. The canyon itself is developed in hard Miocene rhyolitic to dacitic ignimbrites, dated by conventional K–Ar method in ATOMKI, Hungary at 13.89±0.74 Ma, and related to the Somoto Group [4].

Since its rediscovery in 2004, the SGC became known to the public during a short time, and it also underwent rapid development. The canyon was declared a National Monument by law in 2006, and in 2007 the picture of the canyon appeared on a 50 córdobas banknote. Recently, the SGC has become a famous geoheritage site, being amongst the most visited sites in Nicaragua. Since 2014, the SGC aspires to become a UNESCO geopark [5], expecting to create opportunities for local communities in commerce, to give a chance for employment, and for the development of other tourism-related activities.

References:

[1] Žáček V et al. (2004) Somoto, Geological map 1: 50 000. Czech Geological Survey, Prague, INETER, Managua
[2] Hradecký P et al. (2004) Somoto, Report. Czech Geological Survey, Prague, INETER, Managua, 1-100
[3] Buriánek D and Žáček V (2015) Journal of Geosciences 60: 73-94
[4] Hradecký P (2006) Krystalinikum 31: 11-23
[5] Pásková M and Hradecký P (2014) SGEM 2014, Albena, Bulgaria, 53-60