

Challenges in interpreting the landscapes of Zhangjiajie Global Geopark of China

HE QING HUAN¹ AND LIANGQUN XIANG² - 1. *Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China <huanghq@igsnr.ac.cn>* ¶2. *Administrative Office of Zhangjiajie Global Geopark, Zhangjiajie City, Hunan Province, China*

Zhangjiajie Global Geopark is a top-listed tourist destination of China, famous for beautiful landforms composed of around 3000 vegetated sheer vertical sandstone pillars and peaks, some of which extend up to 350 m high, while more than 1000 are higher than 200 m. Quartz is the predominant material of the sandstone landforms, around 90%. These landforms are rare in the world for their large number, height and fairly pure composition. However, they were discovered not long ago and there has been a lack of sound scientific knowledge on the physical mechanisms and evolutionary processes underlying the formation of these landforms. As a result, confused interpretations of the landscapes have been given. To clarify the confusion, detailed research work has been undertaken in the geopark recently. Based on the progress of the research, a scientific interpretation of the landscapes can be presented. The distinct landscapes are characterized not only by pillars, peaks and walls of sandstone but also by tableland, natural bridges, gorges, lakes, waterfalls, gullies and streams. They are the result of flow down-cutting relative to regional gradual uplift, following a pathway of down-cutting the initial tableland by flow and then developing into gullies. With the continual down-cutting, gullies turn into narrow and steep creeks and run over a number of knickpoints. Eventually all the creeks merge into a stream wandering in wide and flat valleys and moving a large amount of eroded sediments out of the drainage basin. It is through this process that various distinct landforms are resulted from in Zhangjiajie Geopark. Taking this interpretation as the theme of the geopark, a number of science popularization activities are planned and implemented in the geopark.

Presented in Theme 3