

## **Yuntaishan Global Geopark VS Grand Canyon World Heritage Site A Contrast of Yuntai/Grand Canyon Physiognomy**

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A Contrast of Yuntai/Grand Canyon Physiognomy

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**Abstract:** Yuntai/Grand Canyon is a result of long-term historical evolution and a rare natural heritage of the world. With its rich heritages of geological physiognomy, systematic geological record, abundant biological fossil combination, long history of structural evolution, they are of contrastive research values worldwide. The Grand Canyon was declared national natural heritage on eleventh January, and in 1979 it was entitled World Natural Heritage Site. Though the two major sites are separated by tremendous seas, they reached agreements in the protection of natural heritages worldwide on account of the shared ideas of society, demonstrating to our children how can we protect the two scenery sites.

**Keyword:** Geopark, Geoheritage, Yuntai Landform, GrandCanyon

Mt. Taihang rises from the central part of north China and extends to the west edge of North China Plain. Towering, and with ragged peaks, precarious cliffs, long strips of walls, deep valleys and shaded streams, Mt. Taihang poses impressive sights with its clear water, dense forest and wonderful sceneries. It is indeed the east slope of Qin-Jin Plateau.

Indeed things tend to coincide. On the other side of the Pacific Ocean, along the west edge of north America and on the wide and spacious Colorado Plateau, there is a winding and deep valley where there are layers of rocks, extensive sharp cliffs, intercrossing ravines and forests of peaks; it is totally impressive. Both sceneries are known to the world for their beauty.

Identical geological conditions and similar history of evolution left two natural sights that resemble each other so much.

Geological changes are infinite, and sedimentation works in similar ways on both sights; and the changing ecological environment gives the world two colorful and comparable geological records.

Both sights are merely brief periods in the long history of earth development, but they show us how cradles of human proliferation and social civilization had looked.

1. Comparison of two parks

1). Sights of Yuntai/Grand Canyon: Immaculate.

Physiognomy of Yuntai/Grand Canyon: Typical representatives of stratiform ravine physiognomy

The physiognomy is distributed widely on the second geological ladder zone (Xing'an Peak-Mt. Yan-Mt. Taihang-West Henan Province; Mountainous areas in west Hubei Province-West Hunan Province; East Guizhou Province-West Guangxi Province) and in the valleys of the Yellow River; similar physiognomy is also to be found in the Grand Canyon of U.S and the Great Rift Valley in east Africa, etc.

The physiognomy has the following features: broken mounds sprinkle the ancient plateau, insignificant streams and brooks carve dongas on the plateau, grits, fine or coarse in terms of sizes, that are near to sources jam water channels, and riverbanks and slopes are covered by slope sediments, remains and flood residues; on the edge of the plateau, there are towering ragged cliffs and long walls when ruptures and joints don't develop; when they do develop, facets of the plateau will be incised by the intercrossing development to form high or low peak walls that resemble plates or peak pillars that reaches into the sky;

Under the river valleys and gulches where water gather on the face of the plateau, suspending waterfalls wash away the soft layers of rock and soil, which collapse into urn-shaped valleys, and gigantic stones fall up-side-down to form stone awls that has no distinctive layers and single components; more often than not, they would pile up

into complicated caves and holes, wherein sands and mud are flushed away by floods;

Inside the valley, erosion by means of wind and water are even stronger, and narrow valleys, shield-like valleys, gorges, suspending valleys, and valley-in-valleys are clearly cut, and ruts formed by water flush and urn-shaped valleys can often be found together. In the lower reaches of rivers, wide valleys, winding streams and yoke lakes grow into major sights, and the flush and collapse on the valley slopes formed peak walls and peak forests, and laddered land can usually be seen on protruding banks. If the major part of the land is made up of carbonate stratum and the ground water active, then waterfalls, springs and falling water will grow, and various forms of calcified awls, beaches, dams and plates will be formed; solution cavities are of an abundance of shapes, and cavity sediments are also of brilliant colors and supernatural carving crafts. Together they work with the rise and fall of earth crust to preserve the richest geological heritages and the most splendid geological sights, presenting wonderful and attractive spots for tourism.

2). Both North China Platform and North America Platform are rare, stable and ancient continental plates.

Core of the ancient continent in North China Platform ages over 3.8 billion years, and its crystallized base ages over 2.5 billion years; core of the ancient continent in North America Platform is 4 billion years, and its crystallized base is formed over 1.84 billion years ago.

Both platforms are important bases for scientific study of the early evolution of the earth and both have been drawing attention from all over the world. In the meantime, for 1.8 billion years, the sediment conditions of the covering sediment layer and the history of geological evolution resemble each other very much. The development of geo-stratum system is complete, fossils of ancient living creatures are rich, categories of rocks are complete, and structural heritages are of rich variety. All in all, they are enlightening textbooks of geology.

The overlying bed of North China platform (moves from) Middle Neoproterozoic Erathem-Cambrian system and Ordovician series, middle carboniferous series-Permian system-Triassic system, Jurassic system, Cretaceous system-Paleogene, Neogene-Quaternary Period, from stable continental plate (before Triassic) to active continental edges. Mt. Yan Movement orogeny within the plate and rifts form the overlying stratum of North China's platform.

Stable platform changes to active continental edges (middle Triassic epoch) and there were sea ingression in T-J. Laramide Revolution, the Pacific plate squeezes toward the east to form paars and emergence/subsidence complex.

## 2. Conclusion

The world is a village, and natural and cultural heritages are common wealth of mankind who are under the obligation to take care of this cause that will benefit generations to come. Cooperation between governments, civilian groups and individuals form all circles, and between the developed and underdeveloped countries are conditions for the realization of this goal; scientific researches offer scientific support and technical cooperation make sure they are not subject to the damages of natural forces. Policies and laws lift the protection to the level of governmental behavior; civilian participation attracts the attention and care of the entire society, support from all circles reinforces the economic strength to carry out protection. Protection thus moves from mere administrative measures to self-conscious act of mankind. Mass education of science promotion also opens, wide, people's horizons and improves the scientific qualities of the society.