

# Red Beds and Danxia Geomorphology Working Group

Danxia Geomorphology Working Group was established in July, 2009 at the 7th International Conference on Geomorphology in Melbourne. Then, the name of the working group was changed to “IAG Red beds and Danxia Geomorphology Working group (hereinafter referred to as the Working Group)” from the original “IAG Danxia Geomorphology Working Group” with the approval of the IAG council. In October, 8th 2022, the name of the working group has been accepted as a Continuing Working Group on “Red Beds and Danxia Geomorphology”. The working group is committed to studying the surface process of the formation of Danxia landform, the controlling factors of the evolution of Danxia landform, geological tourism in the Danxia landform area, the difference and connection between Danxia landform and sandstone landform, and other scientific issues.

## Past activities:

The following achievements have been finished by the Working Group during this period:

### 2.1 conferences and cooperation

In 2022, the Working Group cooperated with the colleagues from the Bad Lands Working Group of IAG. The Working Group actively cooperate with these badlands scientists and co-organized online workshops.

### 2.2 National conferences and meeting organized by the Working Group

Due to very strict epidemic prevention and control measures, the offline meeting in 2022 cannot be held. The scientists of the working group have maintained contact through the internet, and the academic meeting of the offline working group originally planned to be held in Xinjiang Autonomous Region cannot be held. Only one online academic conference was held. In 2022, the Working Group organized the online workshop on Red Beds and Danxia Landform, On July. 12.2022. The conference was attended by more than 150 participants, including academicians, students from 12 research institutions.

### 2.3. Publications

*Books and monographs* During the year of 2019-2021, there is an academic book published by Dr. Ren Fang, Dr. Panzhixin 《Quantitative Techniques for Danxia Landform Research—A Case Study of Longhushan》 was published in 2021-2022 (accepted in 2021, but printed in 2022 because of the pandemic influence). Geological Publishing House: Beijing. Authors: Ren Fang, Pan Zhixing (in Chinese).

*Academic papers* Besides the two books, there are 65 papers published on Danxia landform research during the year of 2021-2022:

- Shi Z, Xin C, Liu H, et al. Geoheritage Geomorphology of an Alpine Region in Northwest China: Introduction to the Yeliguan National Geopark[J]. *Geoheritage*, 2022, 14(2): 61.
- Shu H, Zhang F, Liu P. Study on the Characteristics and Utilization of the Danxia Geoheritage in Northwest China: Implication on Popularly Scientific Education and Undergraduate Teaching[J]. *Geoheritage*, 2022, 14(2): 38.
- Mao X, Retallack G, Liu X. Identification, characterization, and paleoclimatic implication of Early Cretaceous (Aptian-Albian) paleosol succession in Zhangye Danxia National Geopark, northwestern China[J]. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 2022, 601: 111128.

- Zhang Z, Zou H, Zeng Y, Hu J, Rao Xi. Construction and application of a comprehensive evaluation system for study travel destination-illustrated by the example of the Shuping Danxia scenic spot in Lanzhou[J]. SHS Web of Conferences, 2022,145.
- Chen L, Guo F, Shao C, et al. Geodiversity characterization of the Danxiashan UNESCO Global Geopark of China[J]. International Journal of Geoheritage and Parks, 2022, 10(4): 459-476.
- Zhu H, Peng H, Pan Z. Impacts of rock properties on Danxia landform formation based on lithological experiments at Kongtongshan National Geopark, northwest China[J]. Plos one, 2019, 14(1): e0210604.
- Yan L, Peng H, Zhang S, et al. The spatial patterns of Red Beds and Danxia Landforms: Implication for the formation factors—China[J]. Scientific Reports, 2019, 9(1): 1-10. FACIES ANALYSIS OF RED BEDS AND ITS RELATIONSHIP WITH THE DEVELOPMENT OF DANXIA LANDFORM IN LONGHUSHAN AREA OF JIANGXI PROVINCE: AN EXAMPLE FROM XIANRENCHENG SCENIC SPOT[J]. Journal of Geomechanics, 2022, 24(4):522-532.
- Yang Y, Sun H, Yang S, et al. INTERNAL CAUSE ANALYSIS OF DAMAGE OF WOODEN COMPONENTS IN DANXIA TEMPLE ANCIENT ARCHITECTURES: TREE SPECIES[J]. Wood Research, 2021(2):66.
- Tan Yufang, Li Lihui, Huang Beixiu Comparative Study on the Characteristics and Genesis of Danxia Arch Caves in Zhejiang, China, and Natural Stone Arches and Natural Bridges in the Colorado Plateau of the United States [J] Journal of Geography: English Edition, 2021, 31 (6): 17
- Chen, X. , et al. "Lithological and environmental controls on large tafoni along conglomerate cliffs in subtropic humid Danxiashan UNESCO Global Geopark." Journal of Mountain Science: English version 18.5 (2021): 13
- Wu Hao, Peng Xiaohua, Chen Yan, Yao Shan, Zhu Jie, Tang Yudang, Chen Wang Zhuosheng Geological characteristics of Danxia landform landscape formation of Yongning Mountain in northern Shaanxi [J] Mineral Exploration, 2022, 13 (5): 538-547 (in Chinese)
- Li Ruizhi, Hu Xijun, Wen Yafeng, etc Simulation analysis of habitat prediction of Danxia wutong based on Maxent model [J] Wild Plant Resources in China, 2022, 41 (6): 8 (in Chinese)
- Li Yali, Fu Lin, Lei Yuyang, Li Yuanqiu, Chen Hongfeng New distribution area and morphological characteristics revision of Chinese endemic species Danxia wutong [J] Journal of Tropical and Subtropical Plants, 2022, 30 (5): 735-741(in Chinese)
- Bao Yinghua, Han Wei, Zhang Zibin Comparative analysis on characters of Dendrobium candidum and its artificial breeding seedlings in Danxia landform [J] Fujian Agricultural Journal, 2021, 36 (5): 7 (in Chinese)
- Chen Liuqin, Guo Fusheng, Shao Chongjian, et al Discussion on Danxia landform characteristics and its control factors in Jiangxi Province [J] Journal of Geology, 2022, 96 (11): 15 (in Chinese)
- Shi Hao, Yue Dapeng, Zhao Jingbo, et al Study on geochemical sedimentary characteristics and paleoenvironment of red sandstone in Jingbian Danxia landform area, northern Shaanxi [J] Geological Review, 2022, 68 (1): 12(in Chinese)
- Peng Xiaohua, Wu Hao, Li Xingwen, et al Study on the types and development mechanism of Danxia landform in Yan'an [J] Geography of Arid Areas, 2021, 44 (2): 9(in Chinese)
- Chen Liuqin Large honeycombed caves on the cliff of Cuiwei Peak Danxia landform [J] Journal of Mountain Science, 2022, 40 (2): 288-288(in Chinese)
- Text/Image by Chen Yaxin The Color Palette of Nature - Zhangye Colorful Danxia [J] Health Care for the Middle and Elderly, 2022 (3): 54-55(in Chinese)
- Luo Xinhua Exploration of the "Sixteen Scenery Books of Danxia Mountain" [J] Journal of Shaoguan University, 2022, 43 (7): 9 (in Chinese)

- Mengmengzi organized Zhangye Danxia: Crayon Painting of Nature [J] In and out of class: Science Fans, 2022 (3): 6-7 (in Chinese)

#### *Popular science publicity of Danxia landform*

Popular science articles:

- Chen L . Cover story of Danxia landscape. 2021. (in Chinese)
  - Meng J . Danxia Mountain:The Red Rock Park[J]. China Daily:English version, 2022, 71(3):76-80. (in Chinese)
  - Chen L . Cover story of Danxia landscape. 2021. Cover photo in the Journal of Mountain Science (Vol. 18, No. 5) shows one of the iconic attractions in the Mt. Danxiashan--Teapot Peak. (in Chinese)
  - Yu Yinian, Ding Dar, Yu Tu Danxia landform -- as colorful as Wodan, as bright as bright clouds (below) [J] Love Science Every Day, 2022 (4): 4 (in Chinese)
- 2.3.3 Popular science publications □ “Talking about Danxia ”, Guo Fusheng Science Press, 154 pages, published in May 2022

#### *Special research project on Danxia landform (in 2019 and 2020)*

The working Group cooperated with the Shaanxi Provincial Institute of geological survey and finished 3 special research projects on Danxia landform. The topics are as followings “Comparison of Danxia landform development between Northern Shaanxi and western United States” “ Erosional stage and spatial distribution of Danxia landform in Northern Shaanxi Province” “Study on the development law of tafoni in Danxia Landform in Northern Shaanxi”.

2.4 During the years of 2021-2022, the on-going China’s National Natural Science Foundation on Danxia landform research undertaken by members of the Working Group □ The National Natural Science Foundation youth fund project "Research on paleosol characteristics and Paleoclimate of Late Cretaceous Guifeng group in Northeast Jiangxi" (Project No.: 41602113) □ Comparison of genetic mechanism of Danxia landform between southern and Northern China funded by the National Natural Science Foundation of China (Project No.: 41761002)

#### 2.5 Other activities

Due to the very strict epidemic prevention and control measures, the offline meeting in 2022 cannot be held. The scientists of the working group have maintained contact through the internet. The Working Group has established long-term cooperation relationship with some Chinese UNESCO Global Geoparks featured by Danxia landforms, such as Longhushan UNESCO Global Geopark, Taining UNESCO Global Geopark, Danxiashan UNESCO Global Geopark, to publicize Danxia landform to the common people through the geotourism activities.

#### **Forthcoming activities:**

The IAG/AIG Working Group on Red Beds and Danxia Geomorphology intends to promote the red beds and Danxia landform research. The Working Group is also cooperating with IAG Bad Lands Working Group.

In the 2022, the Working Group is urging scientists to do comparative research on the southeast Danxia landform areas with the northwest Danxia sites. In addition, after the pandemic, the working group will

organize annual conference to discuss the research progress in Zhangye UNESCO Global Geopark, Gansu Province.