IJG> Vol.2 No.2, May 2011

OPEN ACCESS

Geomorphologic Structure, Characteristics and Processes in the Cangshan Mountains: Explanations for the Formation and Development of the Dali Glaciation

PDF (Size:2703KB) PP. 155-163 DOI: 10.4236/ijg.2011.22016

Author(s)

Ye Wan, Kaidao Fu, Yong Liu, Zhengtao Shi

ABSTRACT

The area around Cangshan Mountain, located on the southeastern fringes of the Tibetan Plateau, is a key region in terms of revealing the processes involved in the uplifting of the Tibetan Plateau, plus its environmental effects. Based on systemic field and laboratory work, this study uncovers the step-like geomorphologic structure, characteristics and processes revealed in the Cangshan Mountain area, to argue for the formation and development of the Quaternary glaciation there. The results indicate that there were two paleo-glaciations in the area, which were the early and late Dali Glaciations, and that these occurred during the time periods 5.76 × 104 aBP and 1.6 × 104 aBP respectively, being the southernmost paleo-glaciations to have taken place in China. Two step-like paleo-planation surfaces were formed vertically at the mountain (that is, at the summit of Cangshan, which is 3800 to 4000 m above sea level (a.s.l) in height; and at the paleo-glacial and peri-glacial active zones: 3700 to 3900 m a.s.l. in height). Meanwhile three widespread erosion surfaces can be identified at about 2900 to 3500 m, 3000 to 3100 m and 2450 to 2550 m a.s.l. in height; three fluvial fans developed on the landform at about 2250 to 2200 m, 2200 to 2150 m and 2150 to 2100 m a.s.l. in height respectively, and lacustrine relief developed surrounding the Erhai Lake.

KEYWORDS

The Dali Glaciation, Step-Like Landform, Cangshan Mountain

Cite this paper

Y. Wan, K. Fu, Y. Liu and Z. Shi, "Geomorphologic Structure, Characteristics and Processes in the Cangshan Mountains: Explanations for the Formation and Development of the Dali Glaciation," *International Journal of Geosciences*, Vol. 2 No. 2, 2011, pp. 155-163. doi: 10.4236/ijg.2011.22016.

References

[1] Z. W. Cheng and W. Ye. "The Necessity and Emergency of Study on Yunnan Dali Glaciation," Yunnan Geographic Environment Research, Vol. 5, No. 2, 1993, pp. 84-85.

[2] H. V. Wissmann, "The Pleistocene Glaciation of China," Bulletin of the Geological Society of China, Vol. 17, No. 2, 2007, pp. 145-168. doi:10.1111/j.1755-6724.1937.mp17002002.x

[3] J. J. Li "The Thesis Atlas of Academician—The Uplift of Tibet Plateau and Environmental Changes of Asia," Sci- ence Press, Beijing, 2006, pp. 1-200.

[4] W. C. Zhao, "Study on the Geomorphic System of Yunnan," Yunnan Geographic Environment Research, Vol. 10, Supplement, 1998, pp. 47-55.

[5] W. Credner, "The Expedition Report of Yunnan Geography in 1930," Natural Science, Vol. 3, No. 4, 1932, pp. 593-662.

[6] Bureau of Geology and Mineral Resources of Yunnan Province, "Yunnan Province Regional Geological Annals of Yunnan Province," Geological Press, Beijing, 1990, pp. 1-220.

[7] J. L. Feng, "The Physiography of Dali County, Yunnan," Collected Papers of Geographic Research Institute of Chinese Academy of Sciences, 1-2, 1941, pp. 23-56.

- Open Special Issues
- Published Special Issues
- Special Issues Guideline

IJG Subscription

Most popular papers in IJG

About IJG News

Frequently Asked Questions

Recommend to Peers

Recommend to Library

Contact Us

[8] F. B. Chen, J. L. Chen and Y. F. Xu, "The Analysis of Neotectonics of Quaternary Accumulation and Layer La- ndforms in Yulongxueshan–Cangshan Areas," Acta Geographic Sinica, Vol. 47, No. 5, 1992, pp. 431-440.

[9] J. J. Li, Q. Shu, S. Z. Zhou, et.al., "Review and Prospects of Quaternary Glaciation Research in China," Journal of Glaciology and Geocryology, Vol. 26, No. 3, 2004, pp. 235-243.

[10] Chengdu Geographic Institute of Chinese Academy of Sciences, "Geographic Information of Hengduanshan Mountianous Area—Geomorphological Part," Research Report, 1980, pp. 14-26.

[11] P. H. Huang, "Discussing the Geomorphological Research on Yunnan," Quaternaria Sinica, Vol. 3, No. 1, 1960, pp. 10-17.

[12] J. J. Li, S. X. Wen and Q. S. Zhang, "A Discussion on Ages, Extents and Forms of the Upheavalling of Qinhai Xizang Plateau," Science in China, No. 6, 1976, pp. 608- 616.

[13] M. Ren, et al., "A Primary Study on of Lijiang and Yulongshan Mountain," Yunnan University Transaction (Natural Science), No. 4, 1957, pp. 9-18.

[14] Y. F. Shi, et al., "Problems of Quaternary Glaciers and Environment in East China," Science Press, Beijing, 1989, pp. 106-107.

[15] Y. F. Shi, "A Suggestion to Improve the Chronology of Quaternary Glaciations in China," Journal of Glaciology and Geocryology, Vol. 24, No. 6, 2002, pp. 687-692.

[16] Q. L. Chen and W. C. Zhao, "Aerial Images Observation of Glacial Landforms at Cangshan Mountain, Dali, Yunnan," Yunnan Geographic Environment Research, Vol. 9, No. 2, 1997, pp. 66-73.

[17] Y. Feng and D. M. He, "The Precipitation Characteristics and Water Resources Utilization in High Mountain and Deep Gorge Area in Northwest Yunnan Province," Yunnan Geographic Environment Research, Vol. 9, No. 1, 1997, pp. 40-47.

[18] M. S. Kuang and W. C. Zhao, "Study on ESR Dating of Depositional Stratums of Late Pleistocene Epoch in Cangshan Mountain, Dali Area, Yunnan Province," Yunnan Geographic Environment Research, Vol. 9, No. 1, 1997, pp. 49-57.

[19] S. Z. Zhou and J. J. Li, "New Dating Results of Quaternary Glaciations in China," Journal of Glaciology and Geocryology, Vol. 25, No. 6, 2003, pp. 660-666.

[20] R. F. Flint, "Glacial and Quaternary Geology," John Wiley Press, New York, 1971, p. 423.

[21] Z. Q. Zhang, "A Study on the Relationship between Regional Earthquake and Modern Tectonics Movement," Seismology and Seismological Archaeology, 1977, pp. 67-71.

[22] Glaciology and Geocrology Institute, Chinese Academy of Sciences, "The Outline of Chinese Glaciers," Science Press, Beijing, 1988, pp. 1-186.

[23] Y. F. Shi and Z. C. Xie, "The Basic Characteristics of Modern Glacier of China," Acta Geographic Sinica, Vol. 30, No. 3, 1964, pp. 183-208.