

四川龙门山构造带活动的钟乳石记录

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中文摘要:在四川龙门山地区开展构造地质调查过程中,沿龙门山构造带发现了大量灰岩及钙质胶结的砾岩溶洞,这些溶洞形成与构造带的分布密切相关,有些则直接发育在断裂带中。与其它地区溶洞所不同,发现这些溶洞顶部发育的钟乳石普遍发生了偏转现象,即钟乳石目前的最下部生长方向与铅直方向一致,而中部和上部石笋轴线明显与铅直方向存在一定角度的偏折,野外调查表明,沿龙门山构造发育的溶洞石钟乳及石笋的生长受断裂活动控制发生的明显的偏折和摆动现象,为研究龙门山构造活动特征提供了难得的实际材料。钟乳石生长轴线的偏转及AMS14C测年结果表明,龙门山构造带存在明显的周期性活动特征,已有的测年结果反映龙门山构造带于21.81 ka(或22.85 ka)、19.3 ka(或20.71 ka)处于构造活动期,显示了构造的幕次活动特征,测年结果记录到的幕次间隔期或周期为2.14~2.5 ka。结合地震分析,钟乳石生长揭示出石钟乳生长轴线的偏折是龙门山构造带幕次活动期短期内发生持续构造活动的结果,并导致在幕次构造活动期的短时段内伴生大量的地震等构造活动。

中文关键词:[四川龙门山](#) [钟乳石](#) [生长轴偏转](#) [构造活动](#)

Activity of the Longmenshan Tectonic Belt in Sichuan: Evidence from Stalactite Record

Abstract:In the Longmenshan structural geology survey within Sichuan Province, the authors found a large number of limestone and calcium cementation conglomerate karst caves along the Longmenshan tectonic belt, which are closely related to the tectonic belt distribution, with some occurring directly in the fault zone. Different from caves in other areas, the stalactites developed at the top of the caves generally assume deflection phenomenon, i.e., the growth direction of the bottom of the stalactite is consistent with the vertical direction; however, the axis of the middle and top part of the stalagmite obviously shows a certain angle deflection in comparison with the vertical direction. These findings provide valuable actual materials for the study of Longmenshan structure activity characterized by the fact that the cave stalactites and stalagmite's development show obvious deflection and switch caused by fault activities along the Longmenshan tectonic belt. The axis deflection of the stalactite and the AMS14C dating show that the Longmenshan tectonic belt is obviously characterized by cyclical activity. Previous dating revealed that the Longmenshan tectonic belt was in the period of tectonic activity at 21.81 ka (22.85 ka) and 19.3 ka (20.71 ka), which illustrates the structural episodes and cyclic active characteristics whose intervals or spans were 2.14~2.5 ka. The stalactite's growth process in combination with seismic analysis reveals that the axis deflection resulted from the sustainable activities of Longmenshan tectonic belt in the period when deflection interface happened and during the fault activity period, and the activities led to a series of associated earthquakes in this period of structural activities.


keywords:[Longmenshan](#) [Sichuan](#); [stalactite](#); [axis deflection](#); [tectonic activity](#)

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