

论文

西南天山阿图什背斜晚第四纪的阶段性隆升

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摘要:

摘要: 西南天山山前的阿图什背斜带是晚第四纪以来强烈活动的褶皱带, 博古孜河横切背斜构造的中段, 在背斜区形成6级基座阶地, 为晚第四纪以来阿图什背斜阶段性褶皱隆起的地貌标志。用差分GPS测量阶地纵剖面, 发现T1、T2和T4阶地面在背斜的北翼坡向北, 与河流的流向相反。T1、T2和T5阶地面在背斜的南翼坡向南, 平均坡度分别为0.9°、1.2°和1.8°, 远大于现代河床的平均坡度角0.5°。通过细颗粒石英和细颗粒混合矿物的光释光简单多片再生法(SMAR)测年, 确定博古孜河T1、T2、T3、T4和T5阶地的形成年龄分别为距今约(25.0±2.6)、(42.7±4.4)、(63.1±6.3)、(96.9±9.9)和(120±10) ka BP。晚第四纪不同时段博古孜河的下切速率具有不均匀性, 其中T3和T4阶地的下切速率分别为0.49和0.44 mm/a, T1、T2和T5阶地的下切速率分别为1.2、1.69和1.36 mm/a。博古孜河分别在(120±10)~(96.9±9.9) ka、(42.7±4.4)~(25.0±2.6) ka和(25.0±2.6) ka至今的3个时段发生强烈的下切, 应是阿图什背斜带在该时段快速构造隆起导致河流加速下切。

关键词: [天山](#); [河流阶地](#); [光释光测年](#); [活动褶皱](#); [构造隆升](#)

The uplifting of Artux anticline by stages in the Late Quaternary, Southwest Tianshan

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Abstract:

Abstract: The interaction zone between southwest Tianshan and Tarim is located on the northeast side of Pamir; it is a region with several rows of active reverse faults and active fold zones, and the Artux anticline is one of the active folds. The Boguzi River originated from a glacier in Tianshan Mountains incises the middle segment of Artux active fold. Six pedestal terraces formed in the Late Quaternary had developed along the both banks of the Boguzi River at the site of Artux anticline. These terraces had been folded since its formation. The longitudinal profiles of the terraces have been measured at the Boguzi River by differential GPS. It is found that the terrace surfaces of T1, T2 and T4 dip north on the north limb of the Artux anticline and its slope direction is opposite to the flow direction of the Boguzi River. On the south limb of the Artux anticline, the terrace surfaces of T1, T2 and T5 dip south. The average slope angles of the terrace surfaces of T1, T2 and T5 are 0.9°, 1.2°, and 1.8°, respectively. These slope angles are larger than the average slope angle of present day river bed (0.5°). Using the optically stimulated luminescence dating of fine grained quartz and fine grained mixed minerals by the "Double SMAR" procedure, we found out that the formation ages of T1, T2, T3, T4 and T5 terraces are about 25.0±2.6, 42.7±4.4, 63.1±6.3, 96.9±9.9 and 120±10 ka BP, respectively. The incision rates of the Boguzi River are non uniform at different periods in the Late Quaternary. The incision rates of T3 and T4 terraces are 0.49 and 0.44 mm/a, respectively. The incision rates of T1, T2 and T5 terraces are 1.2 mm/a, 1.69 mm/a, and 1.36 mm/a, respectively. The three times of strong incision of the Boguzi River occurred at different periods of time which are (120±10)~(96.9±9.9) ka, (42.7±4.4)~(25.0±2.6) ka and (25.0±2.6) ka to present, respectively. The accelerated incision may have been caused by the quickly uplifting of the Artux anticline at the corresponding period.

Keywords:

Key words: [Tianshan](#); [river terrace](#); [OSL dating](#); [active fold](#); [tectonic uplift](#)

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