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地震学★地电学★地磁学★地球动力学

兰州地区晚第三纪磁性地层与古环境意义

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Magnetostratigraphy and palaeoclimatic significance of Late N of Lanzhou area

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摘要

兰州地区位于黄土高原和青藏高原的过渡带，其第三纪地层对研究风尘沉积发育和青藏高原隆升都有着特殊的意义.本研究距对兰州盆地皋兰山剖面240 m的晚第三纪地层进行古地磁样品采集，古地磁样品共计422个；以50 ℃为间隔从室温至5退磁仪和超导磁力仪完成了皋兰山剖面样品的系统热退磁和剩磁测量.结果表明皋兰山剖面上部地层的实测极性柱出现2个负中间夹着4个正极性小段，其特点与Gilbert时的典型特征完全一致，并且两端未完全出露的正极性分别与Chron2A.3n和Chron3An.1n相对应，最终确定皋兰山剖面的年代为6～3.5 Ma.由此推断，皋兰山剖面顶部的五泉砾岩形成大约开始于3泉砾岩底界年代的确定，为青藏高原的A幕运动提供了地质证据.皋兰山剖面深度602 m处出现由河湖相砂岩向以风成红粘有薄层砂岩的地层转变，通过岩性地层及年代的推断，兰州地区的风尘序列堆积发育的年代至少为7 Ma，与黄土高原风尘界8～7 Ma基本一致，说明了兰州地区与黄土高原在风尘序列堆积过程中具有统一性.

关键词： 兰州地区 风尘序列 磁性地层 晚第三纪 青藏高原隆升

Abstract：

Lanzhou area is located on the northwestern brim of the Loess Plateau and the northeastern marg Tibetan Plateau, where the Tertiary strata have special significance to the study of aeolian deposition of the Tibetan Plateau. Gaolan Hill section is in the southern Lanzhou City with a total thickness of 24 paleomagnetic block samples were obtained from the field with an approximate spacing interval of 0.5 refinement). All samples were demagnetized in a thermal demagnetiser systematically, and then t Remanent Magnetization (NRM) was subsequently measured using a superconducting magnetometer f temperature to 500 ℃ in 50 ℃ steps. The results show that the measured polarity column of the top str Gaolan Hill section contains two large segments of negative polarity with four small segments of norm events in between, which is consistent with the typical characteristic of the Gilbert Chron, and the norm of the two ends corresponds to Chron2A.3n and Chron3An.1n respectively. The palaeomagnetic age of t Hill section was determined ultimately as 6~3.5 Ma. Based on this chronological frame, the initial accum Wuquan conglomerate was approximately at 3.5 Ma, indicating a strong uplift of the Tibetan Plateau, n Phase A of the Tibetan movement. The lithologic characters changed from fluviolacustrine sandstone Red Clay with thin interval of greyish-white sand layers at the depth of 602 m. It can be inferred fron strata and age that the development age of aeolian sequence in Lanzhou area was 7 Ma at least, w accordance with the bottom age (7~8 Ma) of the aeolian sequence of the eastern and central Loess suggesting that their accumulation processes are unitary.

Keywords： Lanzhou area Aeolian sequence Magnetostratigraphy Late Neogene Uplift of Tibetan I

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