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中国黄土与黄土滑坡

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摘要 要：中国黄土以其地层全、厚度大、分布广和特殊的工程性质而著名于世。在平面上从由山西、陕西和甘肃为主组成的“中央黄土高原”向外展布，覆盖面积达6.3×105 km2。第四纪时期当地干旱、半干旱的气候环境为物质源的形成和以风成为主的物质搬运、黄土堆积及侵蚀作用创造了条件，造就今日独特的黄土地貌。在此过程中滑坡既是地貌演变的一种结果，又是过程的积极参与者，因此认为黄土特有的颗粒组成和工程性质在黄土滑坡的发生、演变中起着重要作用；总结该方面的研究成果，并强调这些性质遵循着一条自NW向SE定向渐变(改善)的规律。以此为基础，论述“黄土高原”的地貌分区、黄土滑坡分布、滑坡类型及滑坡形成机制问题。在滑坡诱发因素的讨论中，对地震造成的黄土滑坡给予重点描述。在滑坡防治方面，以一些工程实例为衬托，归纳现常用、有效的黄土滑坡治理方法。最后就需要注意研究的几个问题作简要讨论。

关键词 土力学；黄土；工程性质；地貌；滑坡；形成机制；预防与治理

分类号

LOESS IN CHINA AND LOESS LANDSLIDES

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Abstract

Loess in China is world-famous for its stratigraphical intactness，huge total thickness，vast expanse of distribution and noticeably metastable geotechnical properties. In distribution，loess spreads outward from the “Central Loess Plateau”composed of Shanxi，Shaanxi and Gansu provinces as the main body and blankets a total land area of 6.3×105 km2. During the Quaternary Period，the prevalent arid，semi-arid climatic environment provided the stage on which material sources came into being，grain particles were wind-transported and deposited and loess strata were thus formed，with almost coincident erosion. In this manner，the spectacular loess geomorphological features and landforms evolved. In the processes，the landslides have been either the end results thereof or active participants. The paper puts emphasis on the granulometry and engineering properties which are peculiar to and characteristic of loessial deposits as well as the role they might play in the initiation and evolution of loess landslides，giving them due coverage and reiterating in the meanwhile the fact that there exists a regular，gradual change(amelioration) of the main geotechnical properties of loess in the direction from Northwest to Southeast all across the“Loess Plateau”. From this point，the paper proceeds to discussion of such problems as geomorphological zonation，landslide distribution，structural features of loess landslides as well as their sliding mechanisms. In the brief review of landslide-triggering problems，that of seismic landslides is given due

attention. This is followed by a summing-up of the methods of landslide prevention and remediation that are currently in use in China and have been time and again proven to be effective. As illustrations in this regard，several successful cases and experiences therefrom are cited. Finally，in the closing remarks，the issues that need more attention and further in-depth research are raised and briefly discussed.
Key words soil mechanics；loess；engineering properties；geomorphology；landslides；formation mechanism；prevention and remediation

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