地学雑誌
Journal of Geography
118(6) 1275-1283 2009

平成 20 年度助成金使用報告

GIS を用いた中国黄土高原における水系分布と規定要因の解明

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Clarifying the Distribution of Drainage Networks and Its Determinants on the Chinese Loess Plateau Using GIS

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Abstract

To clarify regional differences and determinants of drainage network evolution on the Chinese Loess Plateau, a distribution map of drainage density is delineated from DEMs. In addition, the distribution map of drainage density is compared to other thematic maps. This comparison reveals that drainage density distribution corresponds to the distribution of landform types such as uplands or hilly lands. The relation between mean annual rainfall and vegetation cover ratio on each landform type is also clarified. On hilly lands, drainage density increases as mean annual rainfall increases from 300 mm to 500 mm. After mean annual rainfall exceeds 500 mm, drainage density starts to decrease if the vegetation cover ratio is more than 70%. The correspondence between drainage density and bedrock geology is not clear. Therefore, it is likely that landform types control the regional distribution of drainage density. In addition, if mean annual rainfall is more than 500 mm, drainage network evolution is limited by vegetation cover even on hilly lands.

Key words：erosion, drainage density, Loess Plateau, DEM, GIS
キーワード：侵食，水系密度，黄土高原，DEM，GIS

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