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Research on The Method of Comprehensive Zoning Indices Analysis in Natural Zoning for Highways

Chao Li [1, 2], Yu Lan Wang [2,3] and Hong Zhi Yang[2]

[1] Civil Engineering Department Shandong Jiaotong University, Jinan 250023, China

[2] Key Laboratory of Special Area Highway Engineering of Ministry of Education , Chang'an University, Xi'an 710064, China

[3] Shandong Provincial Communications planning and Design Institute, Jinan 250023, China

[a] lic211@163.com, [b] jinahelen@sohu.com, [c] E_MAIL:gl15@chd.edu.cn

Keywords: Natural Zoning for Highways, fuzzy clustering, rough set, comprehensive index analysis, influence coefficient

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Introduction

Natural Zoning for Highways is the important basis of highway network planning and establishment of related specifications and standards[1]. Determination method for influence coefficients of comprehensive zoning indices analysis model is the key to increase quantization degree of comprehensive zoning indices analysis. Determination of influence coefficients is an important decision problem in the analysis and calculation course of comprehensive zoning indices because it reflect the position and function of every single element in the indices analysis model and effect the objectivity and accuracy of analysis results.

In previous study on Natural Zoning for Highways in China, zoning indices were not comprehensive ones, but usually single physical geographical element. For instance, China Natural Zoning for Highways in the year of 1986 took the temperature contours (-2℃ contour line of annual mean temperature and 0℃ contour line of January mean temperature) and the contour lines which divide China terrain into 3 steps(1000m and 3000m contour line) as the mark to divide China into 7 first-grade regions, and use moist coefficient as the mark to divide the second-grade regions on the base of first-grade ones. In 2000, comprehensive zoning indices were used in Natural Zoning for Highways of Gansu and Xinjiang province, and influence coefficients of elements were determined by expert estimation method[2]. However, this method often leads to subjective and empirical results.

This paper put forward the determination method for influence coefficients of comprehensive zoning indices which is able to make full use of basic data of the elements to calculate the comprehensive zoning indices without subjective factor influence.