

Study on Chinese Rural Settlements by Remote Sensing and GIS

TIAN Guangjin, LIU Jiyuan, ZHANG Zengxiang and ZHOU Quanbin, China P. R.

Key words: rural settlements; scale distribution; Lorenz curve; exponential distribution; lacunarity index

ABSTRACT

The rural settlements of China are picked up by the land use vector map from interpreting the Thematic Map of 2000. About 7.57×10^5 rural settlements are calculated by the GIS software. The rural settlement density in eastern area is larger than in the western which corresponds with the population density. The rural settlement density in the eastern provinces were higher and sparse in Tibet and Qinghai province.

The average area of the rural settlements is 16.27 hm^2 and regional disparity of the rural settlement scale is apparent. The average area in Northern China is bigger than that of Southern. Those in plain is bigger than in mountain area; those in developed area is bigger than in developing area.

The rural settlements is smaller and about 50.09% is between $2 \sim 9 \text{ hm}^2$, 29.92% is $10 \sim 21 \text{ hm}^2$, 10.32% is $22 \sim 34 \text{ hm}^2$, 8.67% is $35 \sim 104 \text{ hm}^2$ and only 1% is more than 104 hm^2 . The exponential distribution is calculated and the relevant equation between the area and the number of settlements at least $a \text{ hm}^2$. $N(a) = ca^{-1.865}$ is gotten by the log regression. Five provinces are compared.

The spatial distribution of the rural settlements is measured by lacunarity index. It correlates with the rural settlement density. Lacunarity is low when the rural settlement density, so the settlement gap is low. On the contrary, where the rural settlement density is low, the lacunarity is high and the distribution is uneven and the gap is high.

CONTACT

Tian Guangjin, Zhang Zengxiang, Zhou Quanbin
Renewable Resource and Ecological Environment Department
Institute of Remote Sensing Applications, CAS

Liu Jiyuan
Institute of Geographical Sciences and Natural Resources Research, CAS
Post Box: 9718
Beijing, 100101
P.R. CHINA
Tel. + 86 10 6488 9202
E-mail : tianguangjin@sina.com.

JS18 Spatial Information for Planning and Management Models
Tian Guangjin, Liu Jiyuan, Zhang Zengxiang and Zhou Quanbin
Study on Chinese Rural Settlements by Remote Sensing and GIS

1/1