

Population Density Algorithm Based on Areal Interpolation

Lu An-min^{1,2}, Li Cheng-ming², Lin Zong-jian² and Shi Wen-zhong³

College of Remote Sensing and Information Engineering, Wuhan University,
Wuhan, 430079 Email: anminlu@263.net¹

Chinese Academy of Surveying and Mapping, Beijing, 100039²

Dept. of Land Surveying and Geo-informatics, The HongKong Polytechnic
University, HongKong³

Abstract

In economic, social and urban studies, areal units under analysis frequently differ from areal units over which data are compiled. Most area-based analyses, hence face an unavoidable problem of transferring data across different zonal systems, for example, statistical population data requiring spatial transformation. This is so called areal interpolation. In this paper, an areal interpolation with population real distribution is pointed out based on traditional areal interpolation by partitioning the zone into 'occupied' and 'unoccupied' classes. We deduce the new formula. A population density algorithm is discussed based on recursion as well. (1) We partition the study region into two subregions—a sparsely populated region and a more densely populated one. (2) Through estimation the population density of sparsely populated region, we can compute the population density of more densely populated region. (3) The more densely populated region is divided into two subregions-- a new sparsely populated region and a new more densely populated one if necessary. This process can take many iterations until the more real population distribution model is obtained.

Keywords: areal interpolation, population density, recursion