

An Integration of GIS, Spatial Statistics and Network Service for Regional Data Mining

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Abstract: In recent years, with the development of GIS, data acquisition technology and high-performance computation, there has been a growing interest in spatial data mining.

This paper presents a framework for integrating GIS, spatial statistics and network service in regional data mining, as well as their implementation. In this paper, we firstly discuss the spatial statistics methods and their applications in regional complex analysis. We then introduce our new regional data mining tool by integrating GIS, spatial statistics and network service. The tool includes the functions of spatial data visualization, spatial data exploratory analysis, and spatial statistics. The tool also includes some fundamental spatial and non-spatial database in regional population and environment, which can be updated by external database via CD or network. Utilizing this data mining and exploratory analytical tool, the users can easily and quickly analyze the huge amount of the interrelated regional data, and better understand the spatial patterns and trends of the regional development. Moreover, it can be used as an educational tool for spatial data analysis and environmental studies.

In this paper, we also present a case study on Poyang Lake Basin as an application of the tool and spatial data mining in complex environmental studies.