Considerations on Spatial Data and the Development of GIS

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Abstract

We discuss the following theoretical questions regarding GIS spatial data in this paper: the integration of spatial data concepts, the quantity of spatial data, the structure of spatial data, oriented multi-dimensional and dynamic analysis, and the initialization and measurement of GIS spatial data. In this paper, we discuss the problems that occur when using GIS to resolve these questions. Based on the analysis of the necessary spatial data for GIS, four types of spatial relation data were defined: location, adjacency, nearness, and influence. These types are ordered by increasing data quantity. The organization of all these data comprehensively and apparently is very difficult work, and is the source of data problems, such as "not prepared when needed " and "prepared but never used ". As a method of resolving these problems, the feasibility and features of Map Algebra are discussed.

Key words

spatial data, integrality of data, metric space , "0" initialization, map algebra