RESEARCH ON EXPRESSION METHOD OF GDP DATA

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GDP(Gross domestic product) is the ultimate and integrated value of all kinds of products produced by all resident producing units of a country or a region in a certain period of time，and the value is accounted by market prices. The traditional spatial distributions of GDP are calculated on the basis of administrative boundaries. In other words, we can obtain the GDP of a county, a region or a province through social economic statistical data. The advantage of those methods is that the value is easy to be calculated and accounted. But there are apparent limitations on two aspects: the first, because all values inside the administrative unit are the same, so it is hard to express and analyze deeply for the situation of concretely idiographic place in the administrative unit; the second, while the study area is inconsistent with the administrative boundaries, we must convert the social and economic values into statistical data based on study region borders through areal interpolation.

According to the needs of space-based socio-economic statistics in the fields of resources environment, calamity defense and calamity decrease, and the rapid application of the grid GIS, this paper uses the grid analysis technology and statistical analysis technology, studies the pertinence between the land-use situation and the spatial distribution of GDP through researching the relationships among all kinds of geographical variable, then establishes the spatial distributed model of GDP. This is to say, we can estimate the spatial distributed diversity of GDP making use of the spatial distributed diversity of different land-use area. GDP statistics database uses county as statistical unit, which includes the primary, the secondary and the tertiary industrial output value of GDP. The primary industrial output value is further divided into agriculture, forestry, livestock and fishery. This paper makes a single-factor relational analysis between the respective output value of county GDP and all kinds of land-used area, establishes a relative coefficient database between every kind of land-use area and output value of GDP, and then divides the value of county GDP into different spatial grids in accordance with the relative coefficient database, finally establishes the spatial GDP datasets based on fixed-size grid. And on the basis of that, the author establishes a spatial GDP datasets with 1 kilometer size grid of china in 2000 year. Based on the analysis of the key part of grid GDP update, the paper puts forward a grid GDP update model based on administrative polygon borders according to the simple scale model and the environmental terms' area scale model.

This paper establishes a simulated spatial GDP model and update model instead of the traditional statistical distributions of social and economic output value which based on administrative boundaries. It resolves those problems exiting in the old method which made the spatial orientation inaccurate, inexactitude, not unification, and a series of spatial data incompact integration. The method makes the in-depth application of GIS technology in the field of economic statistics more easily, makes the overlay analysis between the statistical data and other spatial data more easily, achieves the management, the analysis and the show of the statistical information taking advantage of GIS analysis functions efficaciously, and establishes the data foundation for further data mining and assistant decision-making.