A new way of network Analysis supporting huge spatial data based on Dijkstra

Zhang Fuhao
Chinese Academy of Surveying & Mapping
zhangfh@casm.ac.cn
China

Based on lots of research, this paper introduces the network model of mathematics and physics, and various methods of network analysis.

The Dijkstra's theory is explained in detail, and it has limitation, which needs geometric series memory with increase of network nodes, is pointed out. The paper emphasizes an optimize arithmetic of shortest path-the max adjoin nodes, and its improvement, which takes full advantage of the linking relation of arc section in network topology.

This methode avoids conjunction matrix which includes lots of zero elements and suits huge data which includes turning.

It is proved that the method can save lots of memory and suit not only huge network but also network of tuning restriction.The author designs a geography network model and a date structure. The improved arithmetic is applied in the network module analysis, the shortest path analysis with turning restriction is realized successfully.

In the paper, the author also discusses the main issue of location and allocation based on the geography network.