Building and Storage of Structure of Contours relationship

Guo Qingsheng   Wu Hehai

Cartography Department
Wuhan Technical University of Surveying And Mapping
Wuhan , the People's Republic of China
430070

Abstract

In theory , the surface of terrian represented with contours is continual, the relationship among contours is a kind of tree_like structure. In order to actulize automatic generalisation of relief based on genalisation of contours it is important that the relationship among contours is clear. Because a single contour can not represent the relief or terrian which must be represented with a series of contours.

In this paper, it is proposed how to build the structure of contours relationship . it is given that is tree_like structure model of contours, and method of building it. This precedure includes two steps : 1. define the direction of contour , let all contours have this attribute which is that, elevant of left side point of this contour is higher than it , and elevant of right side point of this contour is lower than it. Furthermore , close every contour, which can close by self ,or which is closed with outline of this map. 2. define the relationship among contours with help of method with which the relationship between point and polygon can be defined. This relationships are grouped into two kinds:

Once having built the tree_like structure, the relationship between contours and other feature in a map can be found based on the tree_like structure of contours, esp the relationship between contours and lakes. In this paper , it is given how to realized the software about building the structure, which source data for testing the software is digited from a sheet of topographic map which scale is 1:50000. It is discussed how to storage the tree_like structure in micro_computer, and that the algrithm on building the tree_like structure of contours.