

An Improved Method to Eliminate the Distortion of Terrain Relief in DEM Generation Using Contour Lines

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Abstract : : In this paper, an improved algorithm is proposed to eliminate the distortion of terrain relief when generating DEMs from digitized contour lines in the area bounded by inflectional contour lines such as narrow and long mountain ridges or valleys. To this end, mountain ridge lines (valley lines) are extracted from the area, and the steepest slope segment is detected based on ridge or valley lines. After detecting the steepest slope segment, the elevation of the grid points is interpolated on the profile section using the cubic Hermit function. The experiment shows that the accuracy of the DEM of the terrain-distortionable region generated by the proposed method is improved significantly.

Keywords : DEM, contour lines, ridge line, steepest slope segment

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