Enhancement of Segment Tracing Algorithm for lineament extraction based on topographic characteristics

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The Segment Tracing Algorithm (STA) is one of the effective methods to automatically extract lineament from the satellite image and shaded relief image generated from DEM. This algorithm can extract the lineament by extraction and connection of line elements. The line element is the cell having linear topographic feathers which is recognized by the change of the reflection intensity. Because the shaded relief image and the satellite image depend on the direction that irradiates light, extraction capability varies according to the lineament direction. The aim of this study is to extract lineaments from topographic characteristics based on DEM without using reflection intensity. The extraction processing of the lineament is as follows: (1) calculation of the normal vector of the topographic surface in each cell of DEM, (2) decision of continuous direction, (3) extraction of line elements, (4) connection of line elements, and (5) rearranging for the line. This method of each processing enhanced it, and optimized it.

Keywords: lineament, STA, DEM, topographic characteristics