Enhancement of semi-automated lineament extraction from IRS- 1B satellite images for part of Himalayan region

ABSTRACT

This paper presents the results of a spatial domain filtering investigation of lineament mapping from IRS- 1B LISS- I satellite image. A quick and accurate lineament extraction method is applied to a big IRS-1B scene of the study area. Further, the orientation and structural trend of the area is also discussed with respect to the derived lineaments. Efforts have been made to evaluate the techniques as a fast algorithm for quick and time limited analysis of lineaments from which their orientations are estimated. To achieve the objective, various filtering techniques have been used for extraction of the lineaments form IRS-1B scene. In the present study, the acquired IRS-1B satellite scene after being geocoded, has been divided into twelve equal sized windows and a separate raster layer has been made for each of the windows. Two computer programs were used for preparation of the data sets and plotting of the rose diagrams. The result demonstrated that the lineament density value is relatively higher in the high relief area which indicates the presence of fractured rocks with abundant joints and faults owing to the structurally active terrain. As a conclusion, the current method has been found to be useful for lineament extraction from a complex terrain.