Abstraction Information of Active and Concealed Faults by the Remote Sensing Technique

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Abstract

The characteristics of the areal tectonic action controlled by the active fault and its attached area are the important basis in the earthquake activity study, meanwhile, it is also the vital reason to affect the security of the engineering field. The sudden movement of the active fault can damage the buildings; what's more, it can also seduce different kinds of sub-level disasters under some certain conditions.

Active and Concealed fault can form plenty of tectonic physiognomies, and control the physiognomic difference and twined deformation of the land and synchronous turn of the water system, which locate in the both side of the active and Concealed fault. In virtue of characters appearing on the remote sensing image, the active or Concealed fault thus can be recognized. And its geological parameters, such as the act scale, the kind of the fault, the active method and so on, can be analyzed by means of image processing technique on the basis of the texture and spectral characters.

The paper studied the remote sensing image enhancement techniques, which consist of the filter texture enhancement, edge enhancement, principal component analysis, tasseled cap exchange, vegetation index, peudo-synthetic color. Additional, the enhancement disposal aiming at the erosion information, abnormal information of vegetation and ring tectonic were included. The paper took the remote sensing images of Dalian City of Liaoning Province in northeasten China as example to study the properties and image characters of the active and Concealed fault, the act model and its relationship with the other tectonic was studied simultaneously with the aid of DEM and seismic and geological data. This study provides the basic data for seismic geology survey and exactly locating the active fault.

Keywords: Active Fault, Concealed Fault, Remote Sensing (RS), Image Enhancing