

RECONNAISSANCE OF STRUCTURAL FEATURES BASED ON REMOTE SENSING IMAGES ANALYSIS

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Studying the tectonic pattern of a region is time-consuming, requiring advanced techniques to accelerate this process. Therefore, remote sensing images have become an important tool in structural interpretation because it allows rapid understanding of the geology and better definition of targets in the studied area. Tectonic features can be easily located, without the necessity of doing expensive and time consuming field work over large areas.

The use of digital image processing techniques can contribute to the identification, enhancement and extraction of useful information contained in remote sensing images and can combine this information with other data sources.

The area studied in SE Brazil is limited by longitudes 40° and 45° W and latitudes 18° and 23° S. 14 Landsat TM satellite images were used. After generation of 542 color composites, the images were rectified geometrically and a mosaic was prepared. Then, it was digitally processed and interpreted.

The preliminary results show the presence of folded structures related to the Brazilian orogeny. Three linear structural patterns can be distinguished, respectively with directions NE-SW, NW-SE and E-W. These features are the surface expression of underlying geological structures, some of which can be identified with shear zones, faults and milonitic foliations known in the area. Locally it was possible to determine the sense of movement and the temporal relationships between the structures are being studied.