

## **Digital modeling of landscapes and its applications in Regional Geology**

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With the progress of computer science technology and development of softwares, it has been simpler to visualize three-dimensional reliefs and geological features of areas, and facilitate the geological mapping and mineral exploration, geological studies, and the environmental and urban planning.

In this work several data have been used to compose surfaces of three-dimensional georeferencing models compatible with softwares for geoprocessing. Among the used data, topographical data were included, gotten from topographical maps, vectored in scale 1:100.000, geological data obtained from satellite images as LANDSAT 5 and SPOT, geological maps and field observations, besides enhance of the surface by RGB compositions of satellites and aerial pictures.

The applied methodology consists of obtaining the topographical data vectored - if the chosen areas starting from topographical sheets- and attributing the altitudes for the level curves and cotes of the terrain. The other representative surfaces were vectored from data of surveys and soon after gathered with satellite images producing a representative image of the area as a digital model of landscape.

As investigated areas, the region of Boa Vista (Paraíba) was chosen because of the importance for bentonite exploration, a part of the Iguatu Basin (Ceará) for studies of the relief related to agriculture, the municipal district of Acarí (Rio Grande do Norte) because of exploration for ecoturism; and the metropolitan area of Natal (Rio Grande do Norte) because of contamination of ground water and the urban occupation.