

REMOTE SENSING APPLICATIONS IN THE MODELLING OF GROUNDWATER FLOW, SÃO JOSÉ DOS CAMPOS - BRAZIL

1BRESSAN, M.A., 2ANJOS, C.E.

The São José dos Campos town has been presented fast urban/industrial growth. The anthropic activities on the surface modify and introduce new elements of recharge that can pollute the groundwater. This study was developed to evaluate the role of structural features in the movement of groundwater flow, making possible to quantify and qualify the contamination vulnerability of part of the Taubaté Basin. The parameters to evaluate vulnerability by contamination of the groundwater was based on the visual interpretation of satellite Landsat/TM and HRV/SPOT images, tubular wells data, followed by field work. The image pre-processing included atmospheric and radiometric correction, destripping and orthorectification followed by IHS processing. The structural geology data from the photointerpretation was integrated to the hydrogeologic parameters (tubular wells), which were used as input in the modelling of the groundwater flow. The structures that control the flow and infiltration of surface waters are fractures and fault zones, generally NE and NNW trends, associated with Southeast-Brazil Continental Rift. The basin is segmented by NNE and NNW normal faults predominantly and some NE, ENE, N-S WNW fractures. The analysis of the groundwater flow map and groundwater contamination vulnerability map, 1:50,000 scale, made possible the characterisation of the natural vulnerability.