MULTI-TEMPORAL ANALYSIS OF REMOTE SENSING DATA TO ASSESS ENVIRONMENTAL IMPACT IN THE MOXOTÓ RIVER BASIN, PERNAMBUCO STATE - BRAZIL, AFTER A LONG DRY SEASON PERIOD.

DA SILVA, Sebastiao Milton Pinheiro; SARNO, Edgardo Lellis. Companhia de Pesquisa de Recursos Minerais - CPRM, Serviço Geológico do Brasil, Recife - PE, Brasil.

Multi-temporal remotely sensed data, either aerial photographs or satellite images, have been used in monitoring land use transformation and change detection analysis for many decades, with different results according to the type of data, field of application and studied environment.This paper presents an integrative approach using Landsat 5 Thematic Mapper (215.66) enhanced and classified images from two dates (November 20, 1994; December 1, 1998), SAR data and a 1:100,000-scale map sheet to investigate land modification in the Moxotó River Basin after a dry season period that took place in 1995 and keep causing damages to the local population. It's an arid to semi-arid region, limited by 07 50' and 08 30' S and 37 00' and 38 00' W Greenwich, covering approximately 4,200km2.The map was captured into a GIS system in order to provide information and GCP points necessary to georeferencing the images. All the products were analyzed as single bands or combined as color composite images. Differencing images, PCA analysis and supervised classification were conducted to select the best material for visual interpretation and analysis, looking for establishing the earlier panorama and the environmental impact caused by the lack of rainfall during the winter season.The most significant results were obtained over the Poço da Cruz Dam, the area's biggest water supply reservoir (504 X 106m3, total capacity) that almost dried up in the middle of 1998 as delineated by the images. The vegetation covering degradation is another indicated natural disaster.