

CLASSIFICATION OF FLOODPLAIN HABITATS (LAGO GRANDE, BRAZILIAN AMAZON) WITH RADARSAT AND JERS-1 DATA

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ABSTRACT

Constant cloud cover and dense forest canopy prevent the application of optical remote sensing for the classification of floodplain habitats in the Amazon Region. Although several attempts have been made for using Thematic Mapper, the reported results are still incomplete.

Multitemporal (May and August 1996) RADARSAT and JERS-1 radar images were used to investigate the potential of using multi-incidence angle and multiwavelength radar data for increasing visual and digital classification accuracy. Floodplain habitats that are of interest for a preliminary classification are open water, flooded forest, non-flooded forest, aquatic plants and landuse/landcover. Subsets of the Lago Grande scene were selected for a preliminary assessment of the methodology and the classification accuracy.

Raw radar data had to be converted into a near-normal distribution by applying a filtering procedure on each dataset. RADARSAT, JERS-1 and a combination of both images were submitted to a segmentation process using different thresholds according to pixel number and similarity. After this procedure, each segmented image had a Bhattacharya distance classification algorithm applied. The results were then verified with aerial photographs and ground truth information that had been collected concurrently with the radar image acquisitions. Preliminary results obtained for the May data set are encouraging.