

## **TEXTURAL ANALYSIS AND CLASSIFICATION OF CAMPOS BASIN SONAR DATA TO IMPROVE SEA FLOOR CHARACTERIZATION**

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Digital side-scan sonar data acquired by PETROBRAS (PROCAP-2000 Project) were analysed in order to establish an image processing procedure to improve the characterization of sea bottom morphology and associated sediments. Side-scan sonar can be considered an active remote sensing system that uses acoustic signals to produce images. In order to optimise the information extraction of a single band dataset it is essential to use the textural attributes of the image.

The study area is located in the São Paulo Plateau ranging from 2000 to 2400 meters in water depth. It covers an area of 23 km by 29 km embracing part of a modern turbidite system formed inside a trough, flanked by a salt ridge. The main lithologic units found in the area are muds, sands and debris flow deposits.

The image processing procedure includes a pre-processing for image generation with radiometric calibration, geometric correction and resampling of the data. A textural analysis was applied creating new bands that represent the textural features mathematically calculated. These textural bands and the original image were used in an unsupervised classification procedure where an initial number of clusters were defined. The result obtained was merged using an interactive class aggregation in order to improve the geologic significance of the clusters. The efficiency of the processing procedure was evaluated by the integrated analysis of the result with previous image interpretation and geologic information.

The result highlighted areas of different textures, mostly associated with the known geologic units, improving the characterization of the area.