

# ROAD EXTRACTION FROM ALOS IMAGES USING MATHEMATICAL MORPHOLOGY

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## ABSTRACT:

Over the past few years have seen the need to use remote sensing data to accomplish the complex task of automatic extraction of features. Among the sensor systems currently used for mapping can be highlighted the recent launches of new orbital satellites, for example, the Advanced Land Observing Satellite (ALOS). The problems currently involved in the extraction of features like road presents the following issues: The roads may be partially hidden and stretches of road may not be recorded due to limitations of the sensors. Given the need for analysis of the potential of ALOS images, development of methodologies for roads extraction, and the study of problems involved in the process, the aim of this paper is the roads extraction with ALOS images through the use of mathematical morphology. At first step, an initial selection of stretches of road is done using algorithms of mathematical morphology and segmentation. At this stage, most of other classes, such as vegetation were eliminated. However, at this moment the road had not complete obtained, performing inconsistently. This happens due to the spectral similarity between some sections of the road and vegetation present in the scene. Thus, to segment the image in order to eliminate the vegetation, parts of the road were also eliminated. In a second step, within the MATLAB environment, were developed a routine to complement the road obtained after the application of morphological operators. This routine used other techniques of mathematical morphology, and the Euclidean distance for complementation. At the end of the process, the road was complete, resulting in a road consistently. Further tests must still be performed, since the methods and techniques used to extract features modify by the area of study and the type of image being used.

**TOPIC:** Image processing and pattern recognition

**ALTERNATIVE TOPIC:** Image processing and pattern recognition