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FOREST MONITORING OF TIPNIS - BOLIVIA, WITH THE USE OF A SMALL SATELLITE WITH MULTISPECTRAL CAMERA

Abstract

The space technology and its applications in the Earth Observation field, allows us to acquire information from remote areas. For this reason, currently, the Bolivian state has considered a list of interesting applications of remote sensing in the country, including the following: biodiversity, forest and environment monitoring, mining and geology, epidemiology, agriculture, water resources and land use planning. Satellite images have a wide variety of applications for forest monitoring and evaluation, especially in the area of deforestation and determination of the use of natural resources.

The Indigenous Territory and Isiboro-Secure National Park (TIPNIS). TIPNIS is a Bolivian protected area, of difficult access that is considered one of the regions with greater biodiversity worldwide. Recently the Bolivian state has decreed the construction of a high road that crosses the TIPNIS, given this, certain sectors have shown their disagreement because the construction of this road would violate the intangibility of this nature reserve. The Bolivian state has indicated that the construction of this high road will not have a negative impact on the environment, for which it has committed itself to a constant monitoring of forest resources.

The present project seeks to contribute to these actions of monitoring the resources of this protected area, for which the proposal is to develop a small satellite provided with a multispectral camera, with at least seven spectral bands, to acquired and send the images to the earth station located in the Universidad de Ciencias y Humanidades, so then it can be processed and complemented with open source data from others Earth Observation satellites. Finally, two types of analysis will be carried out, the first is a temporal analysis of forest monitoring and various environmental parameters and the second analysis is the classification of agricultural land, to identify the type of crops that exist in the area. This project will be carried out with the help of undergraduate students, so the main objective is educational, but we believe it is important to show how aerospace technology and its applications help to solve real problems.