

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Ms. María Celeste Alvarado Durán
Samara National Research University (Samara University), Russian Federation

ANALYSIS OF CHANGES IN FOREST COVER OF THE TROPICAL FORESTS OF COSTA RICA
USING DATA FROM THE PRISMA SATELLITE: A MULTITEMPORAL ASSESSMENT WITH A
FOCUS ON REFORESTATION AND DEFORESTATION

Abstract

Costa Rica, recognized as one of the most biodiverse countries in the world, is home to a rich variety of forest ecosystems that are vital to the conservation of global biodiversity. This study presents the results of a detailed analysis of tropical forests in Costa Rica using data from the PRISMA satellite.

The PRISMA satellite (Precursore Iperspettrale della Missione Applicativa) is an Earth observation satellite launched by the Italian Space Agency (ASI). It is equipped with a hyperspectral sensor that can capture images in 239 spectral bands within the visible and near-infrared range. Now, with free access to satellite data, the use of this information has been democratized, allowing its application in a wide range of fields without incurring significant data acquisition costs.

For this project, high-resolution images acquired by the PRISMA satellite were used, which provides detailed spectral data in multiple spectral bands. These images were processed and analyzed using advanced image processing tools, in order to perform a multi-temporal comparison, analysis of spectral differences and the use of indices of vegetation to detect changes in forest cover, specifically reforestation and deforestation processes.

The obtained results of this study revealed significant patterns of change in forest cover in different regions of Costa Rica, which highlight the importance of implementing effective conservation strategies and the role of remote sensing and satellite observation to study, diagnose and mitigate deforestation.

This study contributes to the understanding and conservation of tropical forests, while highlighting the crucial role of space technology in environmental monitoring and natural resource management. The findings acquired can serve as a guide for the respective authorities to implement conservation policies and actions aimed at preserving Costa Rica's biodiversity and ecosystem. By using satellites for environmental observation and Earth monitoring, positive results have been obtained that could inspire Costa Rica to consider the creation of a future project involving this type of satellite technology. This project could contribute significantly to addressing various environmental problems facing the country.