EARTH OBSERVATION SYMPOSIUM (B1)
International Cooperation in Earth Observation Missions (1)

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ADVANCES IN REMOTE SENSING APPLICATIONS FOR ENVIRONMENTAL MANAGEMENT IN CENTRAL AMERICA

Abstract

Central America has unique biological diversity which is in jeopardy due to increasing human related activities. One of the major concerns has been the accelerated deforestation rate in the region which is depleting its natural resources.

Remote Sensing started to play a major role in the protection of Central America's biodiversity when it proved to have an extreme potential in the monitoring and communication of environmental problems. For example, a 1986 Landsat image of the Mexican and Guatemalan border showed significant deforestation on the Mexican side, and intact forest cover on the Guatemalan side. This satellite image had such a strong political impact that not only promoted a presidential meeting between both countries, but also helped to create the largest protected area in Central America, the Maya Biosphere Reserve. This was just the beginning of the implementation of RS for environmental management in the Central American region.

Through the continued collaboration of NASA, Central American agencies and organizations used imagery and data products to develop the Mesoamerican Biological Corridor (MBC). Subsequently, NASA, USAID and other partners began the Regional Visualization and Monitoring System (SERVIR) in the region. SERVIR provides products and imagery to the Central American countries, with the purpose of improving environmental management and resilience to climate change by integrating RS technologies into decision making. In Central America, the implementation of RS in environmental monitoring was initially achieved through international cooperation. As a result of SERVIR, national and regional capacity has been built in the region. Central American countries have increased their capacity to process and analyze satellite images, and consequently, the region has moved forward substantially in the implementation of RS technologies. Nevertheless, the original environmental problem of deforestation is still present and growing.

The purpose of this paper is to evaluate how the region has grown in its capacity to employ RS techniques for environmental monitoring and decision making, by identifying both the advances made to date and the gaps that are still remaining. Moreover, this paper explains the implications that RS technologies have had on environmental decisions, as well as past and current challenges the region faces to obtain the greatest benefit of RS technologies in the improvement of their environmental issues.