ABSTRACTS

9. Stefana Ruxandra Ioneanu, Mihaela Gheorghe: *Monitoring deforestation in Apuseni National Park between 2000-2016 using Landsat satellite imagery*

Deforestation represents a major concern today, due to the negative impact it has on the environment. According to data acquired from the Global Forest Watch database, between 2001 and 2015, around 275.150 ha of forest were cleared in Romania, while only 153.641 ha regained/ gained forest cover.

In the beginning, assessment of change, including deforestation, was made using field observation. Once the first color and infrared aerial photos were introduced, the time necessary for observations reduced considerably. Today, the trend is to use remotely sensed data from satellites, as this modern method poses a great variety of advantages.

A problematic area in Romania, in terms of deforestation, is represented by Apuseni National Park, whose forest cover continues to decrease, even after the park was officially declared as protected area in 2000. This paper follows the analysis of forest loss and gain and proposes a method for monitoring deforestation by using multispectral imagines.

Satellite remote sensing offers a number of advantages towards achieving the set goal, such as coverage over large and difficult to access areas and regular observations over this area over long periods of time. In this study, we used scenes acquired by Landsat 7 Enhanced Thematic Mapper Plus (ETM+) and Landsat 8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS), which are newest and most efficient satellites in this series. Landsat is the longest-running mission, exclusively focused on obtaining medium-resolution images, with an impressive archive of millions of images over the Earth, and thousands in Romania since 1972.

The results obtained after processing the data, using dedicated software, showed an area of 7042 ha which suffered forest loss, representing 9.3% of the total area of the park, while forest gain is only 7.8%.

The method used in this study can be applied anywhere on the territory of the country or any other place, as the spectral characteristics of the satellite provides enough information to identify and distinguish the main types of land cover necessary for deforestation studies.