

## **Spatial-Temporal Satellite Database for Trend Analysis in Forest Ecosystem**

Luka Rumora<sup>1</sup>, Damir Medak<sup>1</sup>, Ivan Pilaš<sup>2</sup>  
lurumora@gmail.com

<sup>1</sup>University of Zagreb, Faculty of Geodesy, Kačićeva 26, 10000 Zagreb, Croatia

<sup>2</sup>Croatian Forest Research Institute, Cvjetno naselje 41, 10450 Jastrebarsko, Croatia

### **Abstract**

Data collected with remote sensing techniques are commonly used to monitor forest ecosystems. Processes occurring in forest ecosystems last for years, so it is necessary to collect a large number of satellite images. Therefore, it is important to approach the problem of storage and subsequent access to collected data. One way to approach this problem is to store collected data in a spatial-temporal satellite database. Establishing a spatial-temporal database is the basis for quick and easy access to the collected data. Databases are the basis for processing stored data and their geostatistical analysis. For the purpose of monitoring forest ecosystems, it is necessary to calculate satellite image derivatives. Satellite image derivatives represent vegetation indices calculated using a number of satellite bands. It is necessary to store and sort calculated images in a spatial-temporal database. Stored derivatives are processed using numerous geostatistical methods to get trends in forest ecosystems.

**Keywords:** remote sensing, spatial-temporal database, forest ecosystem