

## Поглавље 5

## Примена даљинске детекције у класификацији земљишних својстава и покривача

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## Садржај:

1. Увод
  2. Даљинска детекција
    - 2.1. Анализа и интерпретација снимака из ваздушног простора
      - 2.1.1. Вегетациони индекси
      - 2.1.2. Примена вегетационих индекса
    - 2.2. Анализа и интерпретација снимака са површине терена
      - 2.2.1. Детекција просторне варијабилности земљишта
      - 2.2.2. Употреба снимака беспилотних летелица у пољопривреди
  3. Закључна разматрања
- Литература

### Remote sensing application for the classification of soil properties and vegetation cover

**Abstract** – Geographic information systems (GIS) are computer systems whose main purpose is to store, analyze and present information about space. Remote sensing is an GIS field that includes the analysis and interpretation of various images of parts of the Earth's surface, taken from the airspace and aerospace, as well as from the terrain surface.

In the last few decades, the possibility of obtaining spatially oriented information by applying remote sensing has drastically increased. Remote detection enables the analysis of plant cover and physicochemical properties of the soil without physical contact. Data obtained by remote sensing can be made from the airspace and aerospace, as well as from the terrain surface. There are several airspace satellite missions (Sentinel, Landsat, MODIS, GeoEye, WorldView, etc.) that use different types of sensors, and all allows data collection for the vast and/or inaccessible areas. The European Space Agency (ESA) in 2015 has launched the Sentinel-2 mission as part of its Copernicus program. As an alternative, aerospace drone technology can be used, that have advantage because digital images collected by drones have a higher spatial resolution compared to satellite images. Vegetation indices obtained on the basis of airspace satellite images or aerospace images are simple and efficient algorithms for quantitative and qualitative assessments of vegetation cover, as well as monitoring of plant cover condition.

Images can be obtained from terrain surfaces by employing different types of sensors: conductivity sensors, gamma rays, infrared spectroscopy (vis-NIR), and X-ray fluorescence

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(XRF). Data received by electromagnetic probes employing the electrical conductivity of soil to examine its characteristics. Traditional methods of sampling and analysis provide accurate results but are not sustainable because they require a large number of samples, which leads to a significant increase in costs when obtaining a representative sample.

**Keywords:** GIS, remote sensing, drone technology, vegetation indices, soil electrical conductivity