

Monitoring of agricultural crops using remote sensing

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Abstract

One of the main challenges in agriculture, especially in arid and semi-arid regions, is the lack of water resources. The geographical location, climatic conditions, average annual rainfall, climatic conditions, vegetation, air pollution, and canopy of crops are significant. These factors lead to different water needs in plants. Therefore, proper water consumption and irrigation management in countries lead to food security, better development of crops, and cost reduction. Due to different climatic conditions and the high cost of monitoring equipment, monitoring plant growth is costly. Remote sensing of agricultural lands, especially on a large scale, with the help of satellite images, is more appropriate and accurate than hardware equipment such as sensors. Factors such as irrigation type, surface albedo, height above sea level, aerodynamic conditions, leaf and orifice characteristics between plants, and soil texture are the main to study plant growth from cultivation to harvest. In this lecture, we review the application of Landsat 8 satellite images and its plant indicators in monitoring crops. In addition, we illustrate that these indicators can estimate the water required for crops. Therefore, remote sensing is a reliable approach to replacing hardware devices. Finally, we review and evaluate one of the projects performed by remote sensing.

Biography

[Amir Abbas Baradaran](#) received his M.Sc. and Ph.D. degrees in computer engineering from the Department of Computer Engineering at Shahid Beheshti University, Tehran, Iran. He completed a successful postdoctoral fellowship at Sharif University of Technology under the INSF fund from May 2020 to May 2021. He has participated in several national projects under the National Elite Foundation from November 2015 to September 2018. His research interests include Remote sensing, Fuzzy sets and systems, Intelligent systems, Wireless sensor networks, and Internet of Things (IoT).

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