MULTIDISCIPLINARY RESEARCH

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Radar Microwave Remote Sensing Monitoring

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Abstract:

Radar senses electromagnetic waves that are a reflection of an active transmission; radar is considered an active remote sensing system. Remote sensing is art of acquiring information about the Earth's surface without actually being in contact with it. This is done by sensing and recording reflected or emitted energy and processing, analyzing, and applying that information. Passive remote sensing refers to the sensing of electromagnetic waves which did not originate from the satellite or sensor itself. In present paper to determine radar backscatter.

Introduction:

RADAR stands for Radio Detection And Ranging. Figure 1 as shown above A radar is essentially a ranging or distance measuring device. It consists fundamentally of a transmitter, a receiver, an antenna, and an electronics system to process and record the data. The transmitter generates successive short bursts (or pulses of microwave (A) at regular intervals which are focused by the antenna into a beam (B). The radar beam illuminates the surface obliquely at a right angle to the motion of the platform. The antenna receives a portion of the transmitted energy reflected (or backscattered) from various objects within the illuminated beam (C). Radar systems are basically 38 categorized into three classes: imaging radars, scatterometers, and altimeters. Imaging radar is the most commonly used radar in remote sensing application. Scatterometers and space borne altimeters are used for monitoring [1].

Microwave sensing encompasses both active and passive forms of remote sensing.. Active microwave sensors provide their own source of microwave radiation to illuminate the target. Active microwave sensors are generally divided into two distinct categories: **imaging and non-imaging**. The most common form of imaging active microwave sensors is RADAR. which essentially characterizes the function and operation of a radar sensor.

The sensor transmits a microwave (radio) signal towards the target and detects the backscattered portion of the signal. The strength of the backscattered signal is measured to discriminate between different targets and the time delay between the transmitted and reflected signals determines the distance (or **range**) to the target[2-4].

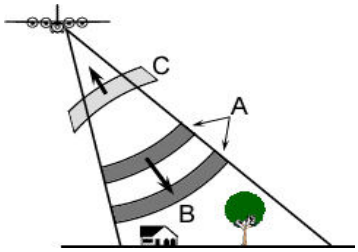

Figure 1. Radar Image.

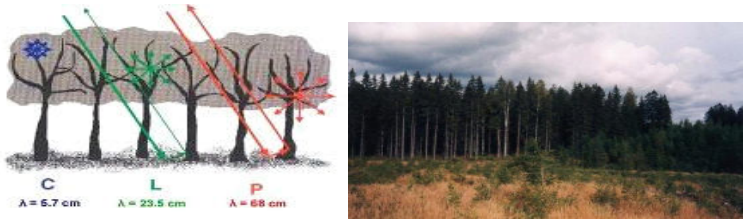

Figure 2. Backscattering from Vegetation

Result and Discussion:

Determines radar backscatter from vegetation:

Ground surface roughness relative to wavelength image having been collected using a different radar band. You can clearly see that there are significant differences between them; this is due to the different ways in which the radar energy interacts with the fields depending on the radar wavelength. Therefore, radar imagery collected using different wavelength combinations may provide different information about the targets on the surface. Scatterers in tree canopy

elements (leaves, branches, and stems) with a size on the order of the wavelength. Elements smaller than the wavelength produce little backscatter. The longer the wavelength, the greater the sensitivity to the vertical structure of vegetation.

Conclusion:

Radar back scatter depend upon on roughness of the surface and depend on wavelength.

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