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Review

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Remote sensing

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Abstract

Remote sensing is the science and art of achieving the complete information of particular object or area that is obtained from the data analysis of a device which does not come in contact with the object or area that is under investigation. Remote sensing is the technology used for the identification and understanding the particular object or conditions of the surrounding area through uniqueness of reflection or emission. The concept of remote sensing can be explained by considering computer monitor, he is actively engaged in remote sensing

Keywords: Remote sensing, Spatial resolution, Spectral resolution, Radiometric resolution, Temporal resolution

Classification of Sensors

The active sensing system generates its own energy to illuminate the target and record the reflected energy.

The microwave part in electromagnetic spectrum forms the base for operating this system. This system does not require any solar radiation. An active system using artificial EMR emitted from a Sensor (source) that is back scattered from the earth's surface and received by the sensor.

The wave length of active remote sensing system is greater than 1mm. Example for active remote sensing system is synthetic aperture radar

Passive sensing system

A passive sensing system using the Sun as the source of electromagnetic radiation that is reflected from the earth's surface and received by the sensor. A passive system using EMR emitted from the earth's surface (source) and received by the sensor.

It is relatively simple both mechanically and electrically and it does not have high power requirement.

It depends upon good weather conditions.

The wave length of passive remote sensing system lies between 0.4 to 1mm.example for passive remote sensing system is any electromagnetic remote sensing system,

Types of parameters of sensors

1.spatial resolution

The minimum area on the ground is noticed by the detector that is placed on a sensor. The resolution is restricted to pixel size i.e. the smallest resolvable object cannot be smaller than the size of a pixel. The quality of image is depending on size of resolution. If the resolution size is small than the image is considered as high resolution. If the resolution size is high than the image is considered as low resolution

2.spectral resolution

- Spectral resolution is depending on bandwidth of electromagnetic radiation.
- When the band width of electromagnetic radiation of channels are used, then the spectral resolution of remote sensing instrument can be determined.
- High spectral resolutions can be obtained through narrow bandwidth compared to broad bandwidth,

3.Radiometric resolution

- It is the minimum change in intensity level that can be detected through sensing system.
- Radiometric resolution of the sensing system is based on the signal to noise ration of detector

4.Temporal resolution

- The represented coverage of the ground can be analysed through sensing system in a small period.

Different platforms used in remote sensing

Based on object under the study on the surface of the earth as follows

1)Air borne platforms

2)Space borne platforms.

Air borne platforms

Balloons and aircrafts are coming under air borne platforms

Balloons: Factors like velocity of wind and direction limits the utilization of balloons. Balloons are commonly applied in resource mapping. Balloons covers large range of altitude for remote sensing measurements.

Air crafts: Air crafts are used to capture aerial photographs of particular area or an object. Aircrafts can fly at low altitudes. It can easily alter the scheduling for avoiding weather problems like clouds that causes problems in view of the ground. The also help in large scale mapping and regional coverage

Space borne platforms

In this platform of remote sensing system, sensors are attached on spacecraft obtaining the earth. Rockets satellites, space shuttles come under space borne platforms. It ranges between 100 to 36000km above the earth surface

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The traditional regularized processing methods have a strong ability to improve the definition, but most of them may sacrifice texture details or introduce artifacts, because their fixed prior parameters cannot fully adapt to various kinds of scenes. To address this problem, we propose a novel fine-processing method based on the adaptive hyper-Laplacian prior for remote sensing imaging systems. The method is developed by automatically updating and optimizing the prior parameters and objective function in the iterative process based on the prior characteristics of different regions of remote sensing images. Experimentally, the proposed method can realize the fine-processing of remote sensing images, including the edge enhancement, texture detail preservation, and artifact suppression

Driving conditions and find good agreement between the method and PEMS data. The method is applied to individual vehicle model types to quantify distance-based emission factors. The method will be appropriate for application to larger vehicle emission remote sensing databases, thus extending real-world distance-based vehicle emissions information

We also present a day that a Saharan dust event occurred in Athens in order to demonstrate the information we obtain through the synergy of in situ and remote sensing instruments on how regional aerosol is added to local aerosol, especially during pollution events due to long range transport These are mostly useful for resource mapping, metrological and communication applications.

Advantages of remote sensing

Its records satellite images permanently, so that the information can be provided in different wavebands. Data can be collected easily at various scales and resolutions. The data of single remotely sensed image is used for various applications and purposes. Computers are used for fast processing of data.

Disadvantages of remote sensing

Remotely sensed data is expensive for one-time analysis and small area. Training is needed for analyzing the images. It cannot prepare large engineering maps through satellite

Conclusion

We believe this is a necessary practice that will foster the next generation of commentators and improve the study of the conduct of scientific publication.

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