Remote Sensing

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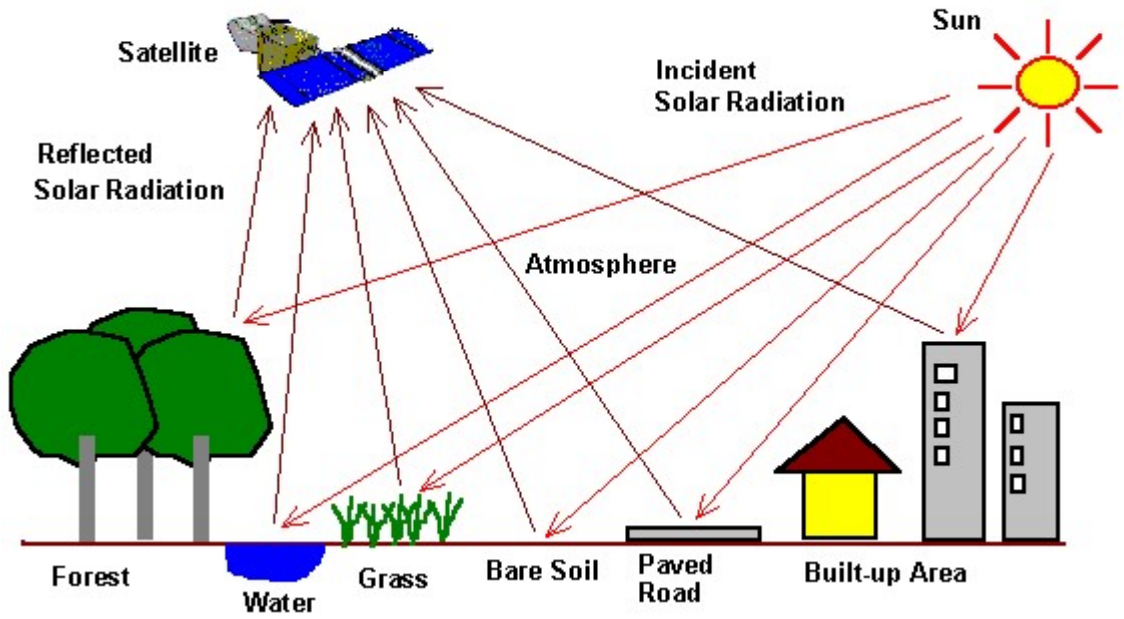
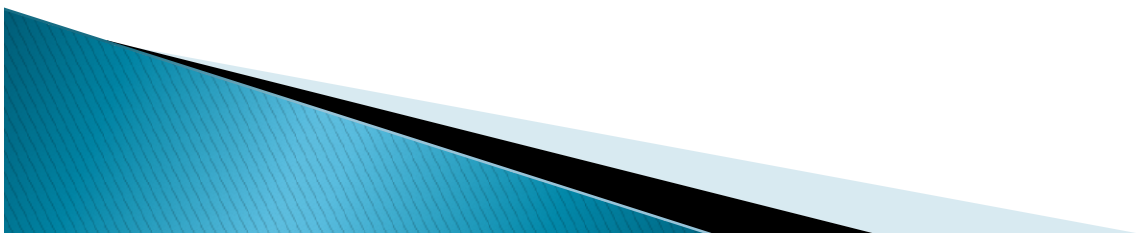
What is Remote Sensing?

- "Remote sensing is the science (and to some extent, 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."



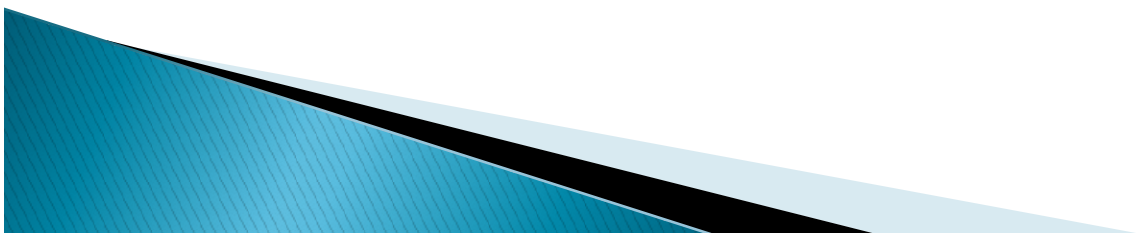
Advantages of Remote Sensing

- Inaccessible areas such as oceans and deep valleys can be easily mapped using remote sensing.
- It is possible to collect data in bands for a given area simultaneously
- Different types of sensors with different properties are available for capturing objects and earth surface phenomena.
- Less cost per unit area in case of large areas.
- Repetitive coverage is possible with remote sensing.
- Remote sensing is not weather dependent unlike traditional surveying and can be performed in all weather conditions.



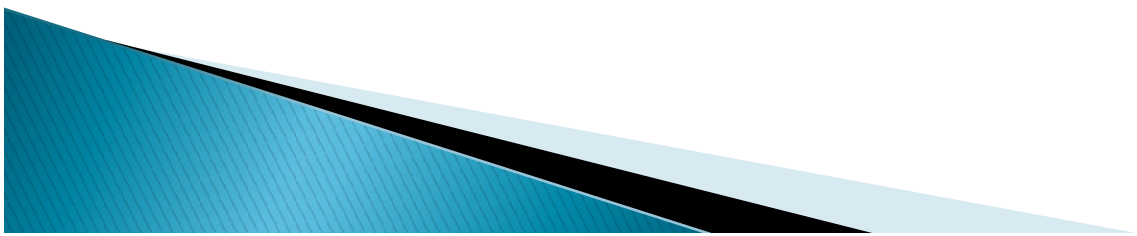
Advantages of Remote Sensing

- It is possible to cover entire globe with the help of remote sensing imagery.rek
- Synoptic view is obtained in remote sensing
- remote sensing data recording is completely unbiased.
- Remote sensing imagery are analyzed in the laboratory under fair conditions.
- The data is digital and can be readily be processed or analyzed in computer.
- A single multi band image for a study area can be used in many applications such as classification, temperature, crop health, mineral exploration etc.



Disadvantages/Limitations of Remote Sensing

- Remote sensing is expensive and not cost-effective for collecting details for a small area.
  - Data collection for unit area, specialist training, equipment and maintenance becomes costly for a small area compared with larger areas.
- Requires specialist/skilled persons for analyzing and interpreting remote sensing data.
- It is difficult or some times not possible to prepare maps at higher scale from remote sensing or satellite data. However, this data is getting improved with time as technology is getting advanced.
- Some of the satellite imagery are costly.
- Repetitive coverage is required for studying dynamic features.



Disadvantages/Limitations of Remote Sensing

- Human induced errors are possible in remote sensing during the process of interpretation, analysis etc.
- In case of active remote sensing, as the energy is produced from the sensor, the released energy may interfere with the object and alter its properties.
- Remote sensing satellites are difficult to control and maintain if any problem arises once after the launch.
- The data and sensors of satellites are calibrated prior to the launch, and re-calibration becomes difficult or not possible often in remote sensing.
- Improper selection of bands, lack of experience may result in unwanted errors or mistakes in the information.

Disadvantages/Limitations of Remote Sensing

- Along with features of interest, other features are also mapped in the remote sensing image. Analyst has to account for these other features depending on the application he/she is working (for example in case LULC mapping, we have do corrections for atmospheric water vapor, shadows, sun angle etc).
- Though remote sensing is widely used in many fields and applications, it is not an universal solution and in many areas it cannot be used.
- Depending on spatial resolution data storage may become big problem.
- Poor temporal resolution and spatial resolution may cause problems often in certain analysis.
- Data has to be verified with ground truth for use.
- Presence of clouds can cause hindrance in analyzing imagery.

Thank You