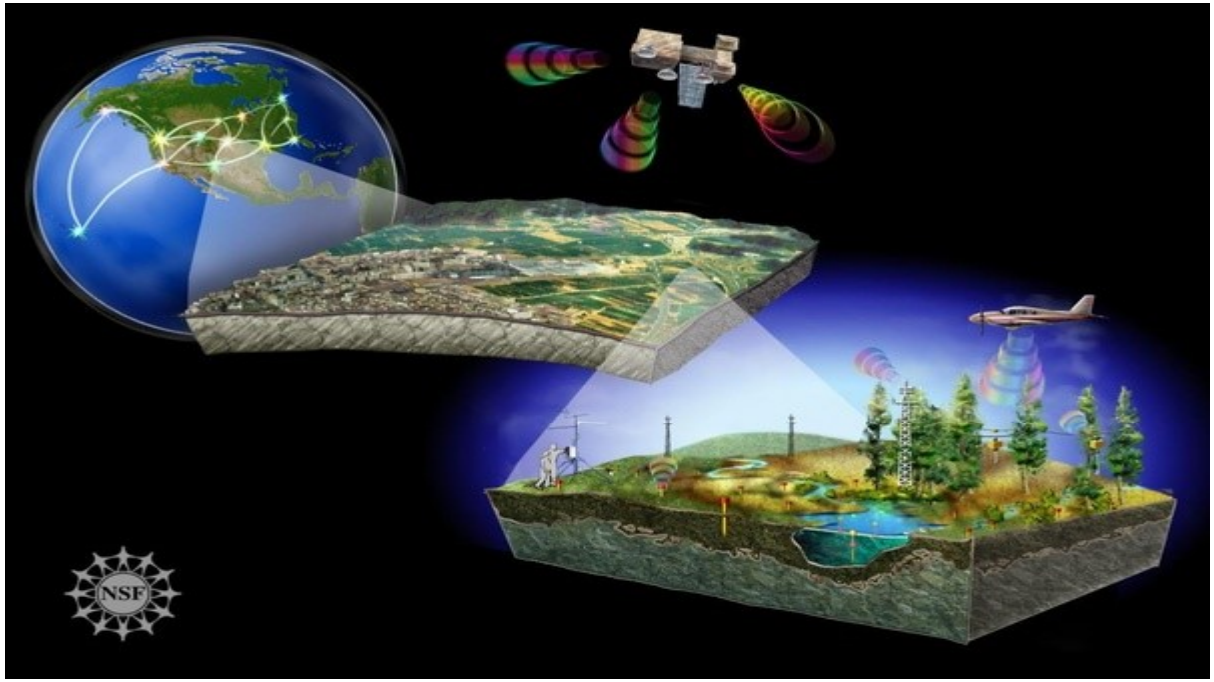
GIS&RS



PRESENTATION PRESENT
BY
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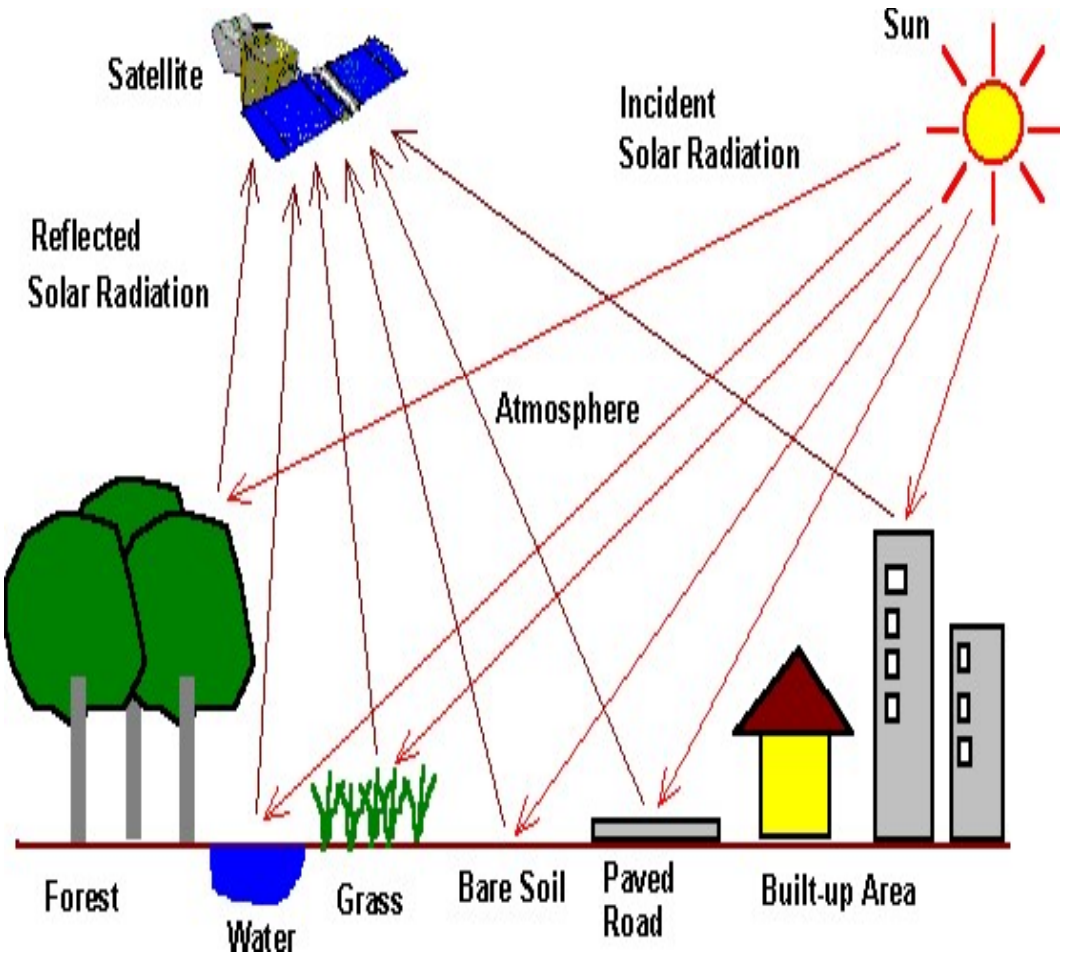
Remote Sensing

Definition :

Remote sensing is an art and science of obtaining information about an object or feature without physically coming in contact with that object or feature



APPLICATION OF REMOTE SENSING

Crop Yielding

Tsunamis

Forest Fires

Regional Planning

Surveying in Inaccessible Areas

Flood and Drought Warnings

Earthquake Estimation

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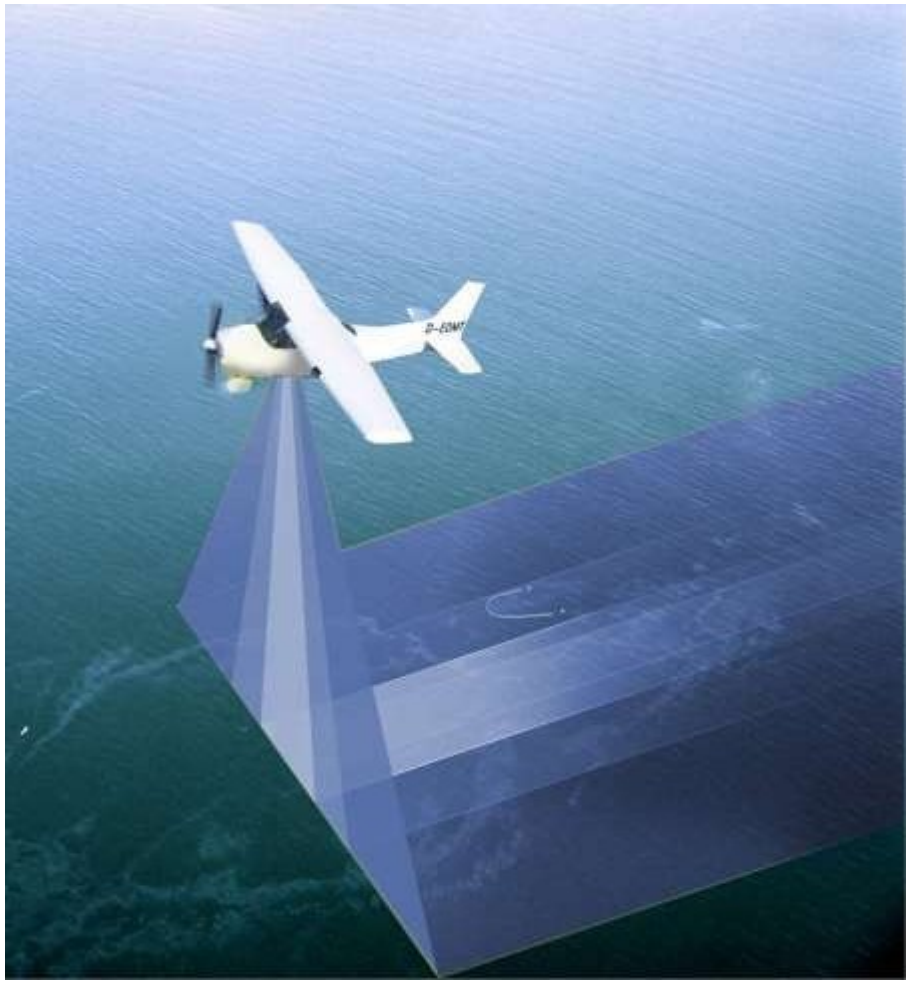
Weather Maps

HISTORY OF REMOTE SENSING

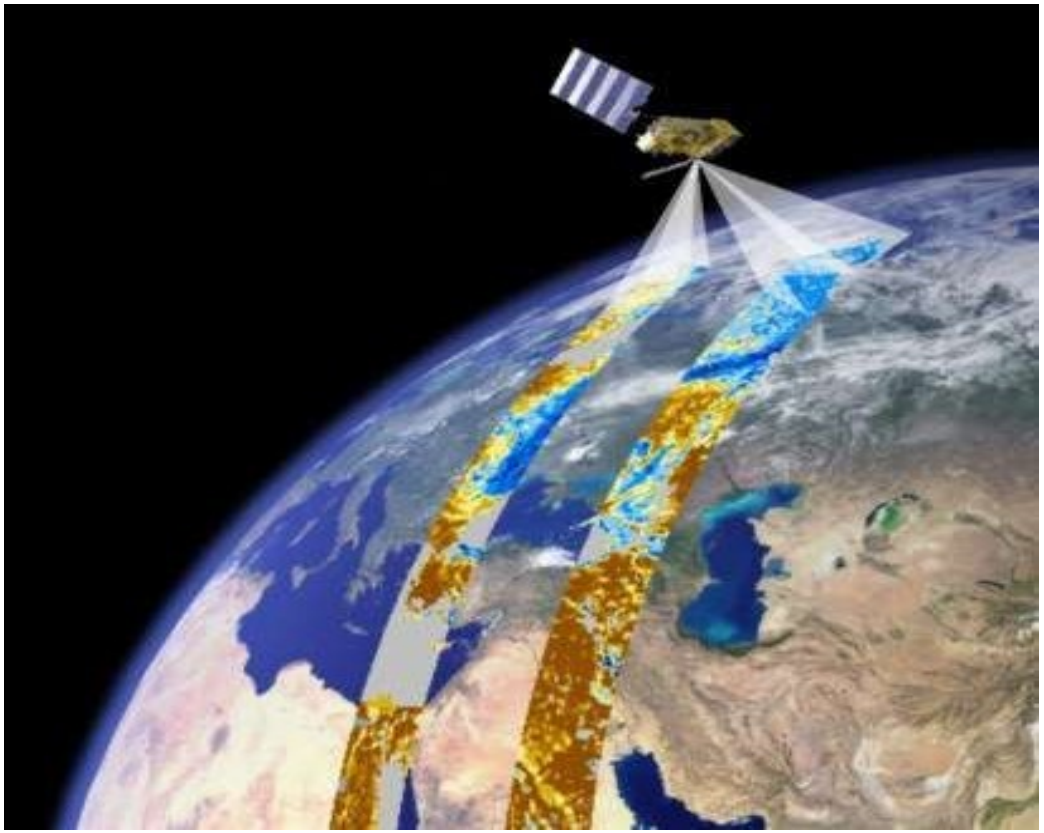
Remote sensing began in the 1840s as balloonists took pictures of the ground using the newly invented photo-camera. Perhaps the most novel platform at the end of the last century is the famed pigeon fleet that operated as a novelty in Europe

Image: 1903 pigeons wearing cameras. Image Credit: NASA

In the first world war cameras mounted on airplanes are used to provide images of large surface areas



In 1960s and 1970s primary platform changed to satellites



Sensors become available to record the earth surface in several bands what human's eye couldn't see

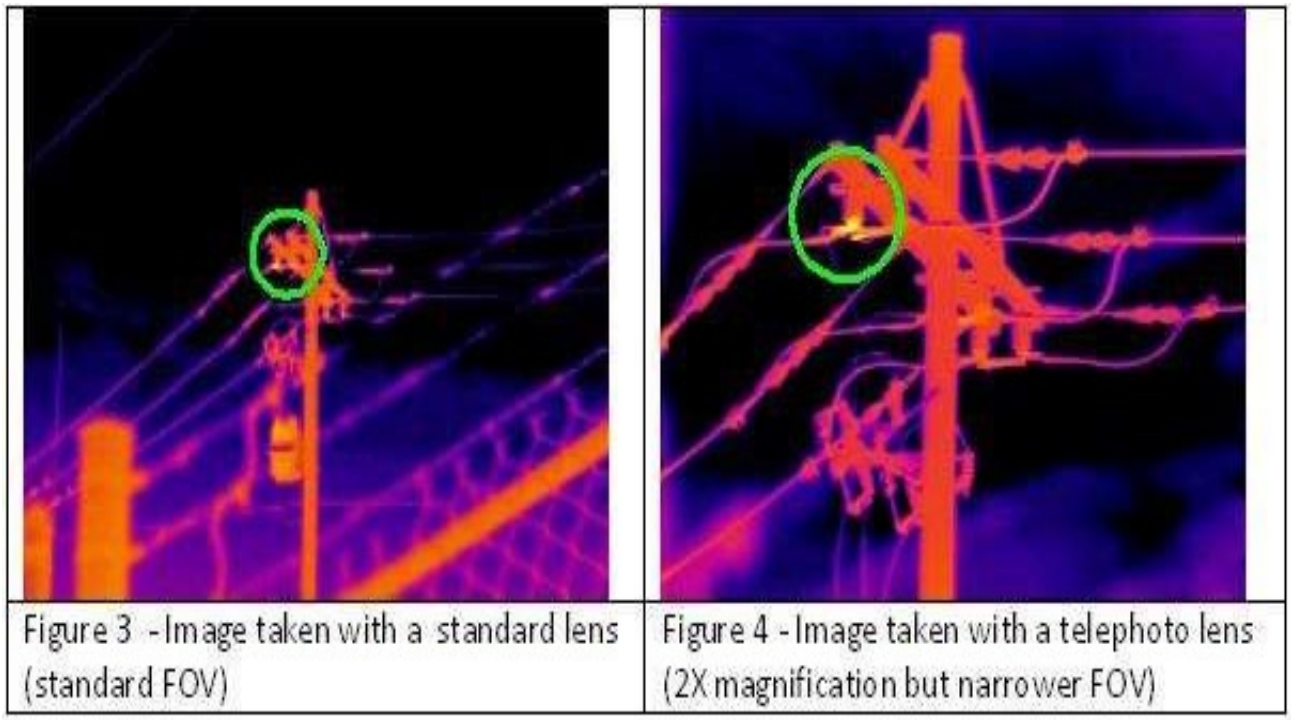


Figure 3 - Image taken with a standard lens (standard FOV)

Figure 4 - Image taken with a telephoto lens (2X magnification but narrower FOV)

TYPES OF SENSORS:-

Optical Sensors used in remote sensing systems

MSS

T M

HRV

LISS I.II

LISS III

LISS IV

PAN

WIFS

Remote Sensing Sensors

Sensor is a device that gathers energy (EMR or other), converts it into a signal and presents it in a form suitable for obtaining information about the target under investigation. These may be active or passive depending on the source of energy

Active sensors use their own source of energy. Earth surface is illuminated through energy emitted by its own source, a part of its reflected by the surface in the direction of the sensor is received to gather the information

Passive sensors receive solar electromagnetic energy reflected from the surface or energy emitted by the surface itself. These sensors do not have their own source of energy and can not be used at night time, except thermal sensors. Again, sensors (active or passive) could either be imaging, like camera, or Sensor which acquire images of the area and non-imaging types like non-scanning radiometer or atmospheric sounders.

SATELLITE TYPES

1. LANDSAT Series
2. MODIS ,ASTER
3. SPOT Series
4. IRS SERIES
5. IKONOS
6. LIDAR
7. RADAR
8. SRTM

INDIAN REMTE SENSING

Starts in 1960s

- First Indian satellites
- Aryabhata (19 -April-1975) launched in LEO by USSR rocket
- Bhaskara cameras I & II carrying two TV
- CAMERAS
- **Rohini siries (experimental)**

First Indian Remote Sensing Satellites

- IRS -1A (17 –March -1988), 904 km
- IRS -1B (29-August-1991)

Both carrying

- LISS -1A (Resolution 72.5 m)
- LISS -2A,LISS -2B (Resolution 36.25 m)

➢ IRS -1C (1995), 817 km

➢ IRS -1D (1997)

- Ground Control Stations

- Located at Bangalore(tracking and monitoring)

National Remote Sensing Centre

- located at Hyderabad (Balanagar & Shadnagar) to process data

PHYSICS OF REMOTE SENSING

- Acoustic Wave Distribution (Ion based)
- Force Distribution (Force based)
- Electromagnetic Energy (Wavelength based) and

- REMOTE SENSING DEALS WITH DATA COLLECTED BY ELECTROMAGNETIC ENERGY

THANK YOU

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