History of Remote Sensing

1858 – First Aerial photograph taken from Hot air balloon.

1903 – Pigeon mounted camera patented.

1914 – Plane mounted cameras. (World wars)

First space based photo taken on March 7, 1947.

This photo was taken by an automatic K-12 camera using black and white infrared film, from a VIKING SOUNDING ROCKET that reached height of 227 km.

OUR PRIORITY
ACADEMY
(A unit of RACE)

Earth's cloudy surface, as seen by Alan Shepard onboard the Mercury – Redstone 3 (MR – 3) space craft on May 5, 1961. (first US manned spaceflight).

Launch of Landsat – 1 (July 23, 1972)

(Previously known as ERTS, Earth Resource Technology 45+ years of data in now available through this satellite, useful for long term studies like climate change it has multi spectral scanner (mss) of resolution 80m appx. (Only 4 – bands).

1986 – SPOT French Earth Observation satellite (10 PAN and 20 meter spatial resolution)

- 1970-1980 – Rapid advances in Digital image Processing.
- 1980's – Development of Hyper spectral sensors. (Very micro meter thick channel bands.)
- 1990's – Global Remote sensing (Better communication)

Development in India –

Aryabhatta (19 April, 1975) – 1st Indian satellite

1979 – Bhaskara I and II First Remote sensing satellite (2 cameras: visible and Near Infrared, Satellite Microwave Radiometer (SAMIR) operating at 19 and 22 GHz.

– The IRS system is the largest constellation of Remote sensing satellites for civilian use in operation today in the world, with 12 operational satellites.

– Indian Remote sensing Programme started in March 1988 with – successful launch of IRS IA.

– Recently, CARTOS AT-2 ASTROSAT has also launched.

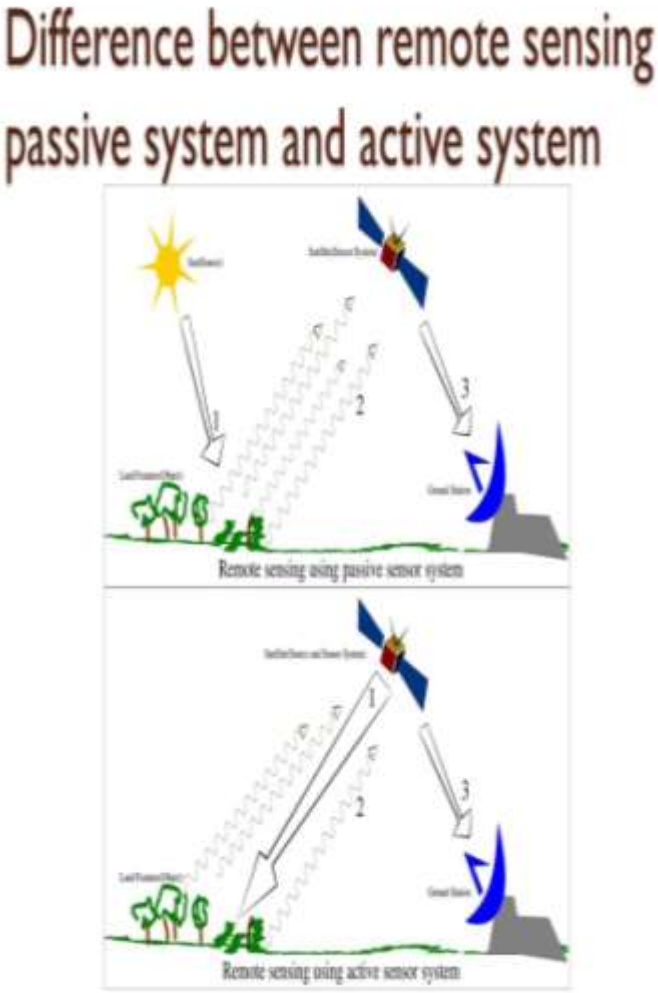
IRS – ID → First Satellite (India) Launched by own PSLV – CI (1997 September)

IRS P6 – Oldest Satellite in service (Resource sat – 1, from – 2003)

Difference between Passive Remote sensing and Active Remote sensing

Passive Remote sensing

- Doesn't employ any external source of energy.
- Measures either reflected radiation from sun (can be operated only daytime) or the emitted radiation from the surface (day/night operation)
- Suffers from variable illumination conditions of sun and influence of atmospheric conditions.

Active Remote sensing

- Has its own source of par Energy.
- Active sensors emit a controlled beam of energy to the surface and measures the amount of energy reflected back to the sensor.
- Controlled illumination signals. (No atmospheric hiderence High wavelength)