SNS COLLEGE OF TECHNOLOGY

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Coimbatore – 35

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DEPARTMENT OF AGRICULTURE ENGINEERING

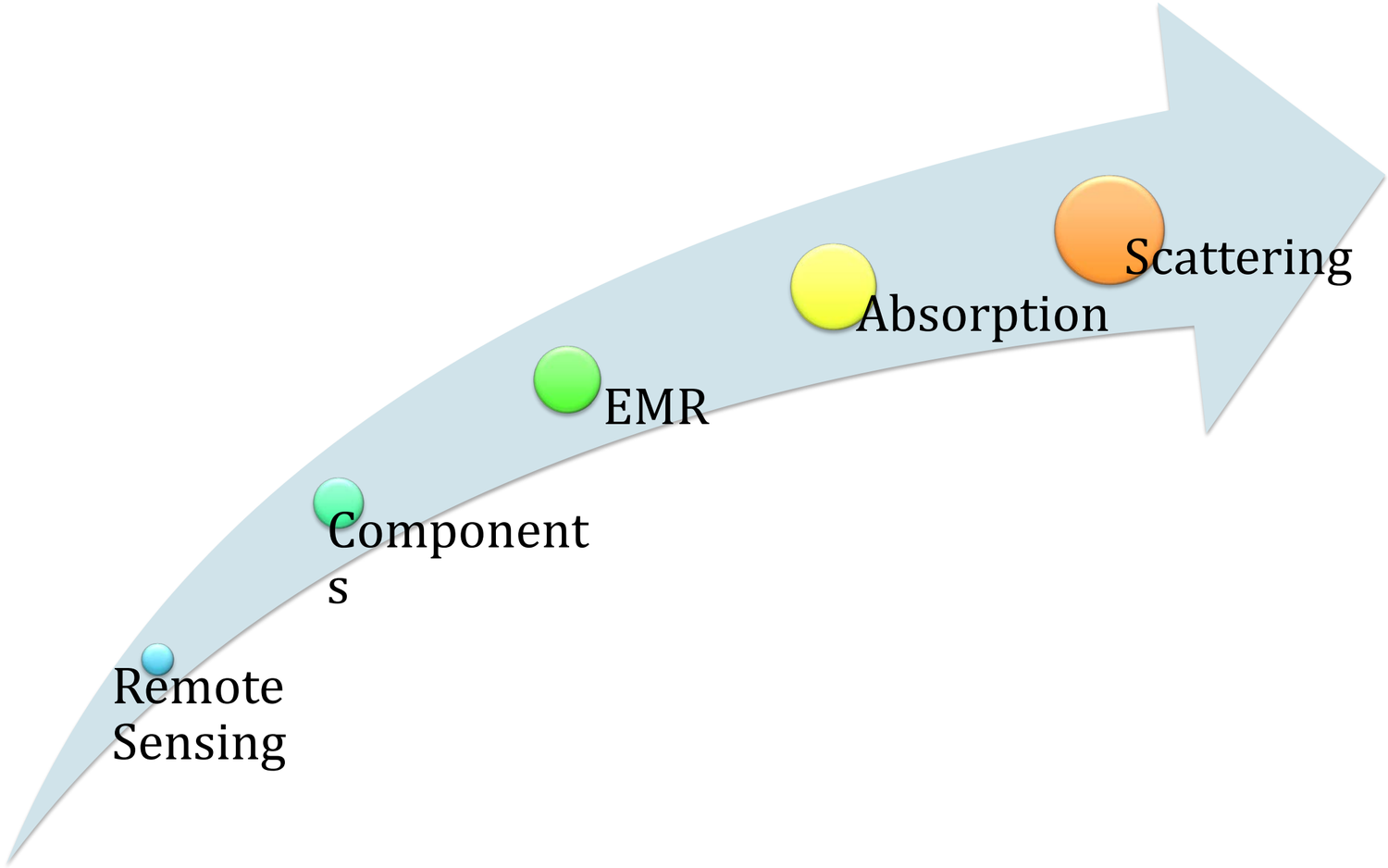
19AGT302 – GIS AND REMOTE SENSING

III – YEAR V SEMESTER

UNIT 2 – REMOTE SENSING SATELLITES AND SENSORS

TOPIC 1 – PLATFORMS

Last Class Review



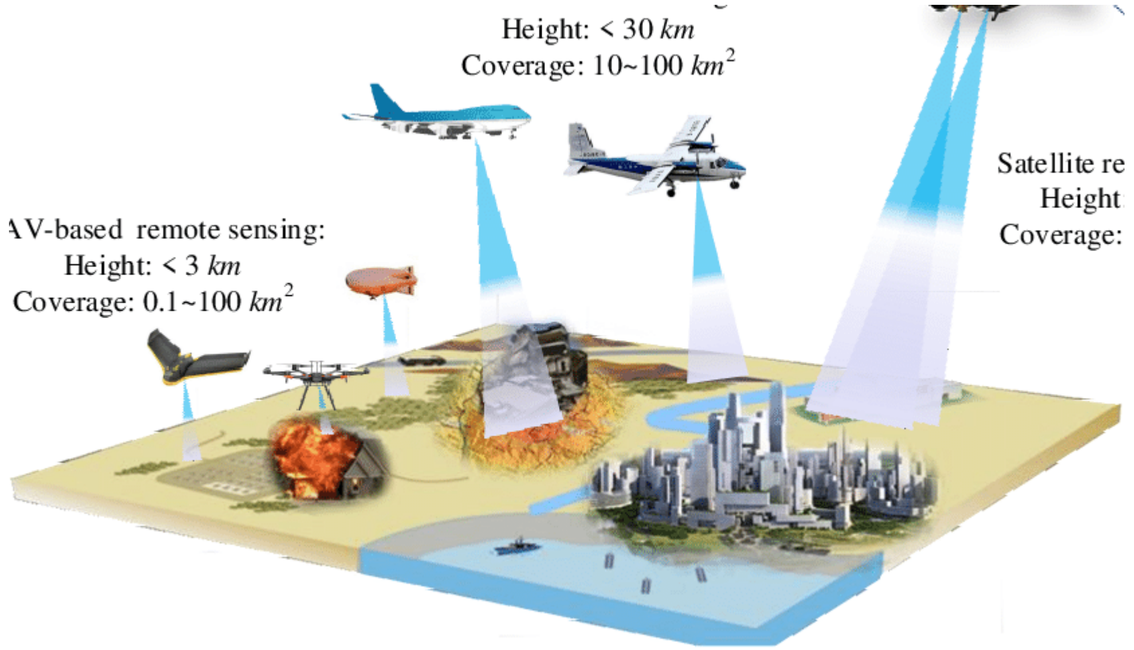
What is a Platform?

- For remote sensing applications, sensors should be mounted on suitable stable platforms. These platforms can be ground based air borne or space borne based.
- As the platform height increases the spatial resolution and observational area increases.
- Thus, higher the sensor is mounted; larger the spatial resolution and synoptic view is obtained.
- The types or characteristics of platform depend on the type of sensor to be attached and its application.
- Depending on task, platform can vary from ladder to satellite.
- For some task sensors are also placed on ground platforms.
- Though aircrafts and satellites are commonly used platforms, balloons and rockets are also used.

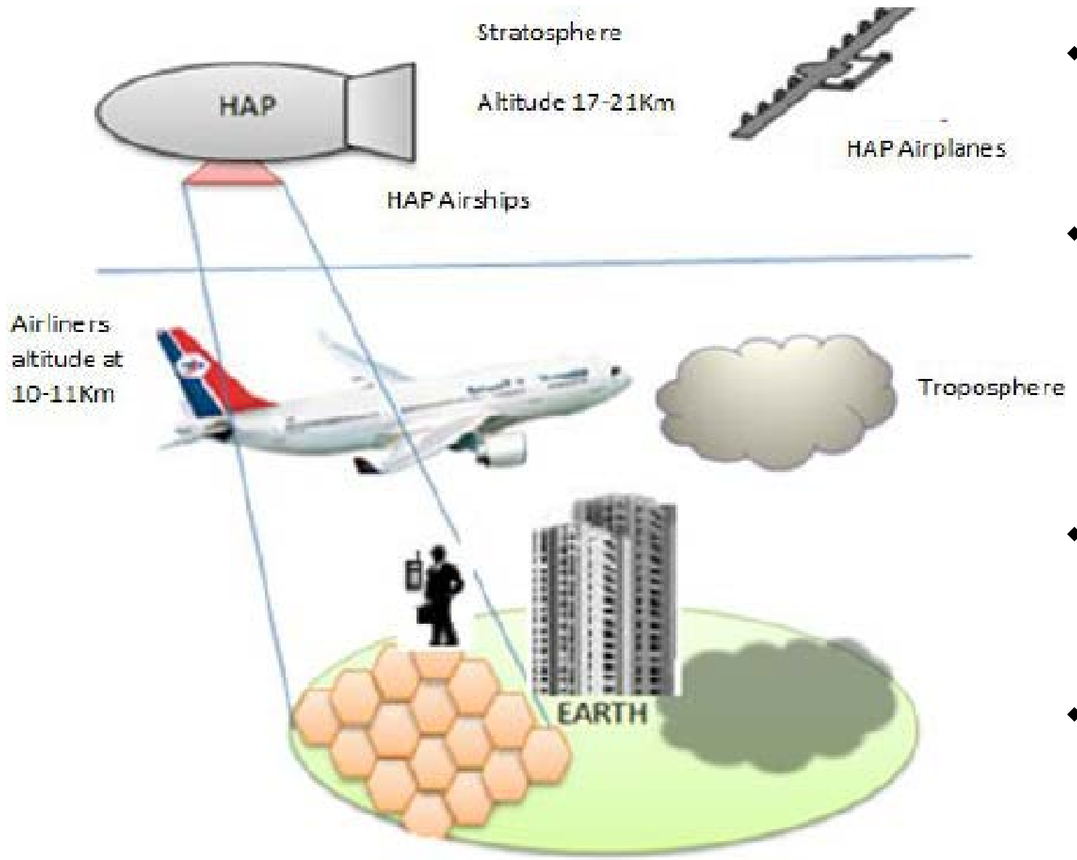
Type of Platforms

Three types of platforms are used to mount the remote sensors –

- ❖ Ground Observation Platform
- ❖ Airborne Observation Platform, and
- ❖ Space-Borne Observation Platform



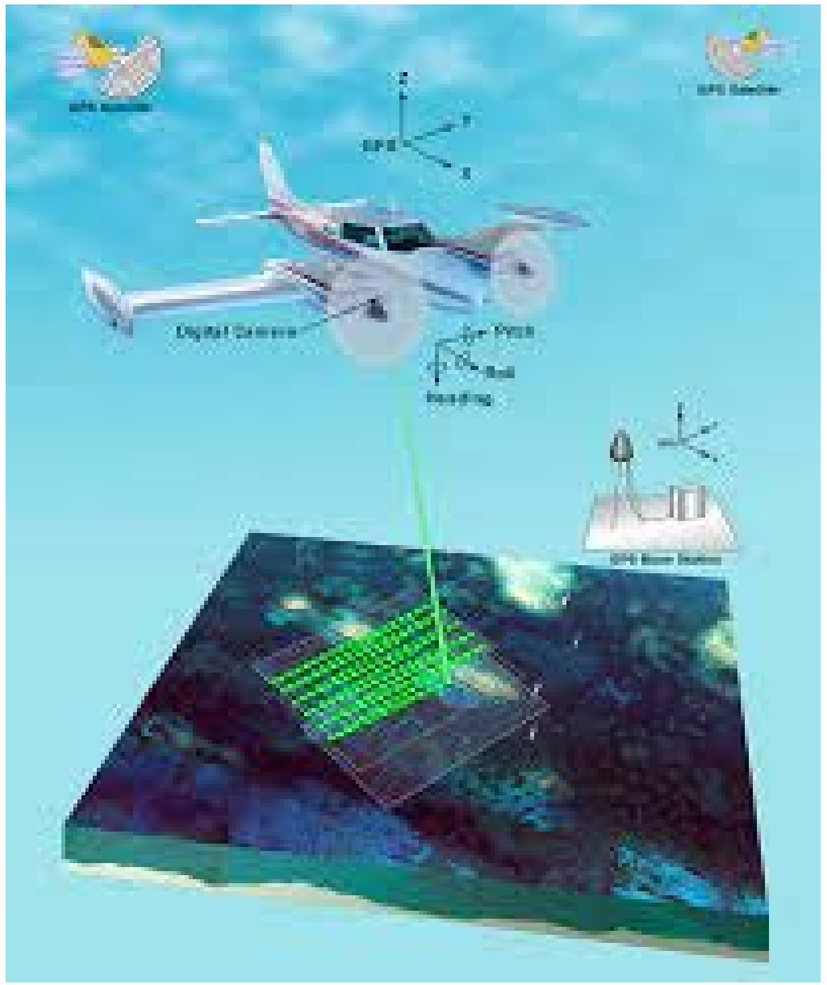
Ground Observation Platform



- Ground observation platforms are used to record detailed information about the objects or features of the earth's surface.
- These are developed for the scientific understanding on the signal-object and signal-sensor interactions. Ground observation includes both the laboratory and field study, used for both in designing sensors and identification and characterization of land features.
- Ground observation platforms include – handheld platform, cherry picker, towers, portable masts and vehicles etc.
- Portable handheld photographic cameras and spectroradiometers are largely used in laboratory and field experiments as a reference data and ground truth verification.

Air Borne Based Platform

- Airborne platforms were the sole non-ground-based platforms for early remote sensing work.
- Aircraft remote sensing system may also be referred to as sub-orbital or airborne, or aerial remote sensing system.
- At present, airplanes are the most common airborne platform.
- Other airborne observation platforms include balloons, drones (short sky spy) and high altitude sounding rockets.
- Helicopters are occasionally used.



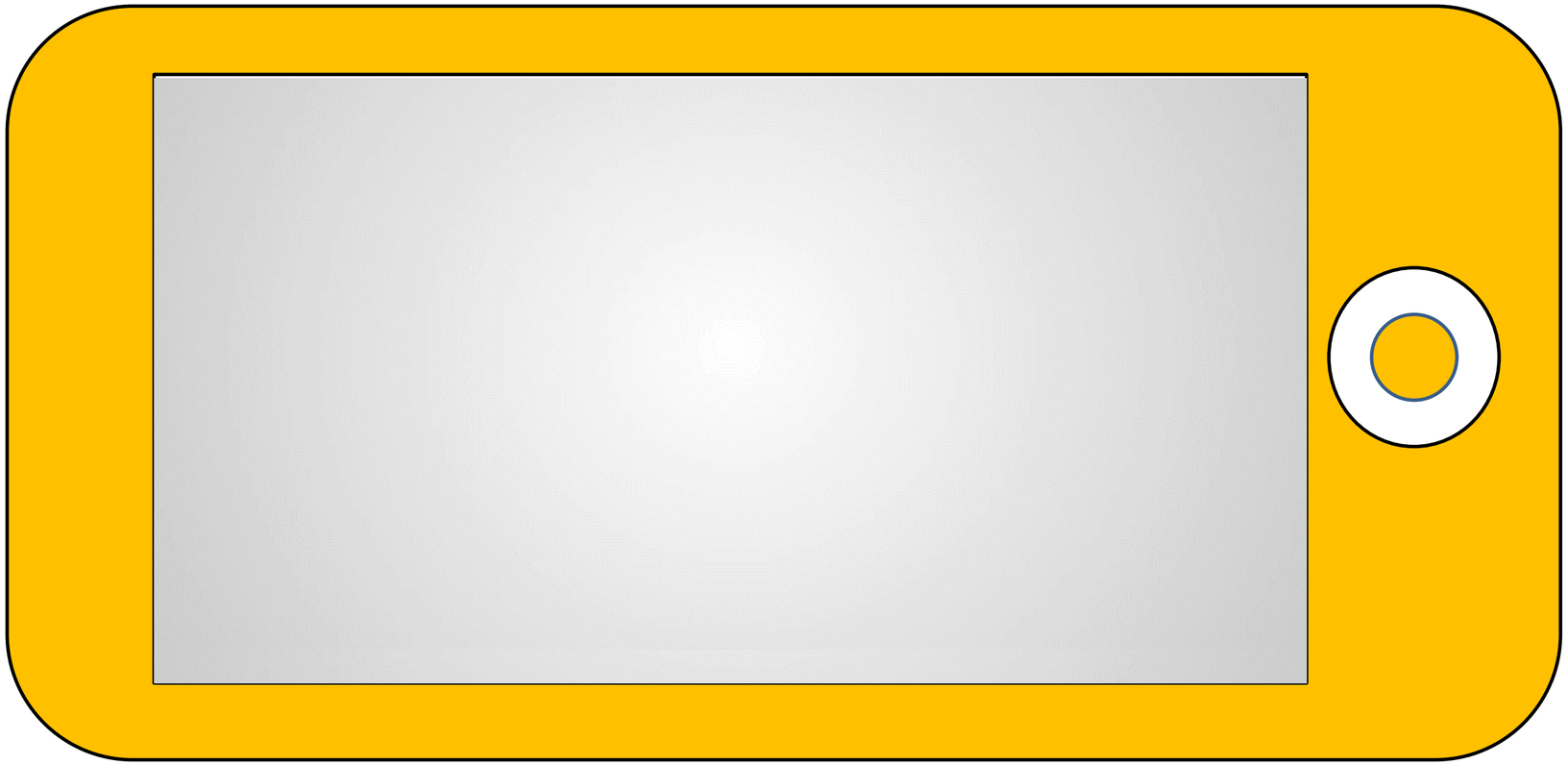
Balloon Platform

- Balloons are used for remote sensing observation (aerial photography) and nature conservation studies.
- The first aerial images were acquired with a camera carried aloft by a balloon in 1859. Balloon floats at a constant height of about 30 km.
- It consists of a rigid circular base plate for supporting the entire sensor system which is protected by an insulating and shock proof light casing.
- The payload used for Indian balloon experiment of three Hasselblad cameras with different film filter combinations, to provide PAN, infra red black and white and infra red false colour images.
- Flight altitude being high compared to normal aircraft height used for aerial survey, balloon imagery gives larger synoptic views.
- The balloon is governed by the wind at the floating altitude. Balloons are rarely used today because they are not very stable and the course of flight is not always predictable, although small balloons carrying expendable probes are still used for some meteorological research.

Drone

- Drone is a miniature remotely piloted aircraft. It is designed to fulfil requirements for a low cost platform, with long endurance, moderate payload capacity and capability to operate without a runway or small runway.
- Drone includes equipment of photography, infrared detection, radar observation and TV surveillance. It uses satellite communication link.
- An on-board computer controls the payload and stores data from different sensors and instruments.
- The payload computer utilizes a GSM/GPRS (where available) or independent satellite downlink, and can be monitored its position and payload status from anywhere in the world connected to the internet.
- Drone was developed in Britain during World War-II, is the short sky spy which was originally conceived as a military reconnaissance.
- Now it plays important role in remote sensing. The unique advantage is that it could be accurately located above the area for which data was required and capable to provide both night and day data.

Reference Videos



See You at Next Class!!!!