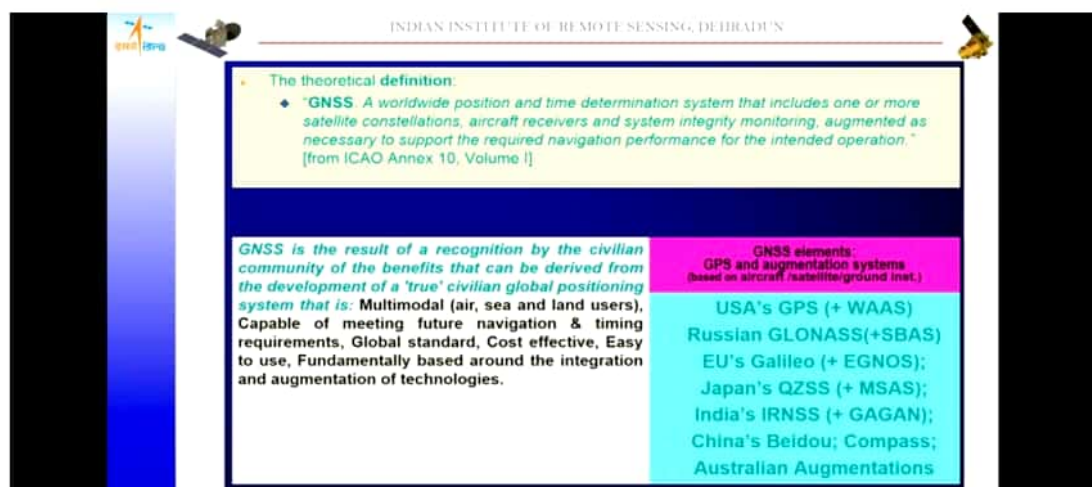


DAILY ASSESSMENT FORMAT

Date:	02/07/2020	Name:	PREETHAM S RAI
Course:	IIRS Outreach Program on Satellite Photogrammetry and its Application	USN:	4AL18EC040
Topic:	Introduction to Global Positioning System	Semester & Section:	4 th sem 'A' section.
Github Repository:	Psraipreetham		

FORENOON SESSION DETAILS

Image of session



In today's session I have learnt

Brief history of navigation

Landmark based navigation : Stones-Trees-Monuments

Celestial navigation for Latitude, poor for longitude until accurate clock invented – 1760



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Early space

Development of basic methods for satellite observations and for computations and analysis of satellite orbits provided publication of the first Earth models such as :

The Standard Earth Models

The Goddard Earth Models

Satellite navigation

A satellite navigation system is a system that uses satellites to provide autonomous geo-spatial positioning.

Navastar global positioning system

Space vs ground based navastar system

High frequency radio signals, necessary for the optimal atmospheric penetration, require line-of-sight transmission paths. Ground – based systems are limited to objects above ground.

GNSS

It is the result of the recognition by the civilian community of the benefits that can be derived from the development of a true civilian global positioning system that is Multimodal.

GPS SIGNAL SYSTEM

Each GPS satellite transmits a number of signals.

Bandwidth allocated for L1 – 24 MHz, L2 – 22 MHz and L5 – 28 MHz

Recivers

Single frequency

Dual-multi Frequency

Three classes of gps GPS recivers

Geodetic class

Mapping grade



Navigation

Gps Surveying techniques

Statics

Rapid statics/fast statics

Stop and go

Kinematics

Principles of differential GPS/GNSS

The reference station may compute the errors.

This can be transmitted to the user receiver in real time.

The user receiver computes his position using the Pseudo-ranges obtained from the same 4 GPS satellites and applies the corrections.

This also provides improved position estimate.

Precise point positioning

It is similar to DGNSS positioning methods, however it uses permanent reference stations to quantify systematic errors. It can also be in post-mission or real time mode.

Limitations are long observation requirements.

Examples :

RTX services by Trimble.

Leica

Omnistar

AUSPOS

Satellite based autonomous system

GNSS AVIATION INTEGRITY

INS

It is an independent regional navigation satellite system developed by ISRO, India.

Operational name : Navigation with India



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It is designed to provide accurate real time Position, navigation and time services to users on a variety of platforms and applications.

IRNSS is providing two types of services, namely :

Standard Positioning Services

Restricted Services

Space segment

Stereo vision



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