1. Sub satellite Point

- Point at which a line between the satellite and the center of the Earth intersects theEarth's surface
- Location of the point expressed in terms of latitude and longitude
- If one is in the US it is common to use oLatitude –degrees north from equator o
  Longitude –degrees west of the Greenwich meridian
- Location of the sub satellite point may be calculated from coordinates of the rotatingsystem as:

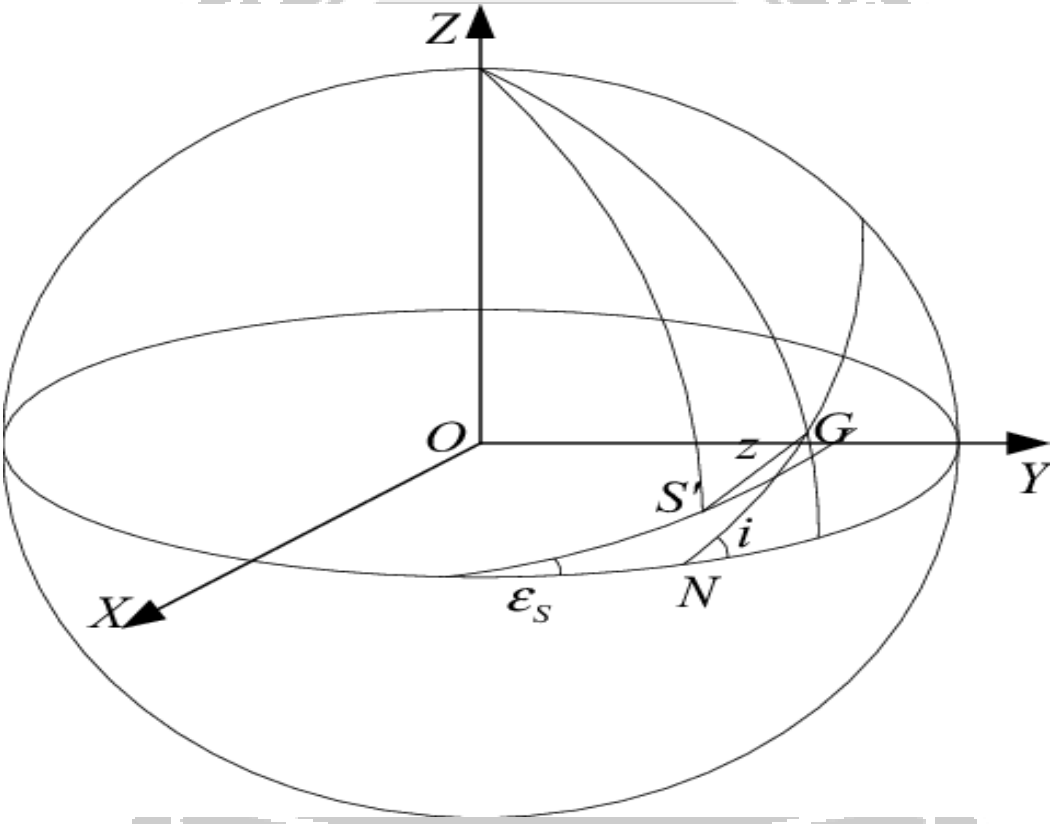

Figure **Sub satellite Point**

Sun Transit Outage :

Sun transit outage is an interruption in or distortion of geostationary satellite signals caused by interference from solar radiation.

Sun appears to be an extremely noisy source which completely blanks out the signal from satellite. This effect lasts for 6 days around the equinoxes. They occur for a maximum period of 10 minutes.

Generally, sun outages occur in February, March, September and October, thatis, around the time of the equinoxes.

At these times, the apparent path of the sun across the sky takes it directly behind the line of sight between an earth station and a satellite.

As the sun radiates strongly at the microwave frequencies used to communicate with satellites (C-band, Ka band and Ku band) the sun swamps the signal from the satellite.

The effects of a sun outage can include partial degradation, that is, an increase inthe error rate, or total destruction of the signal.

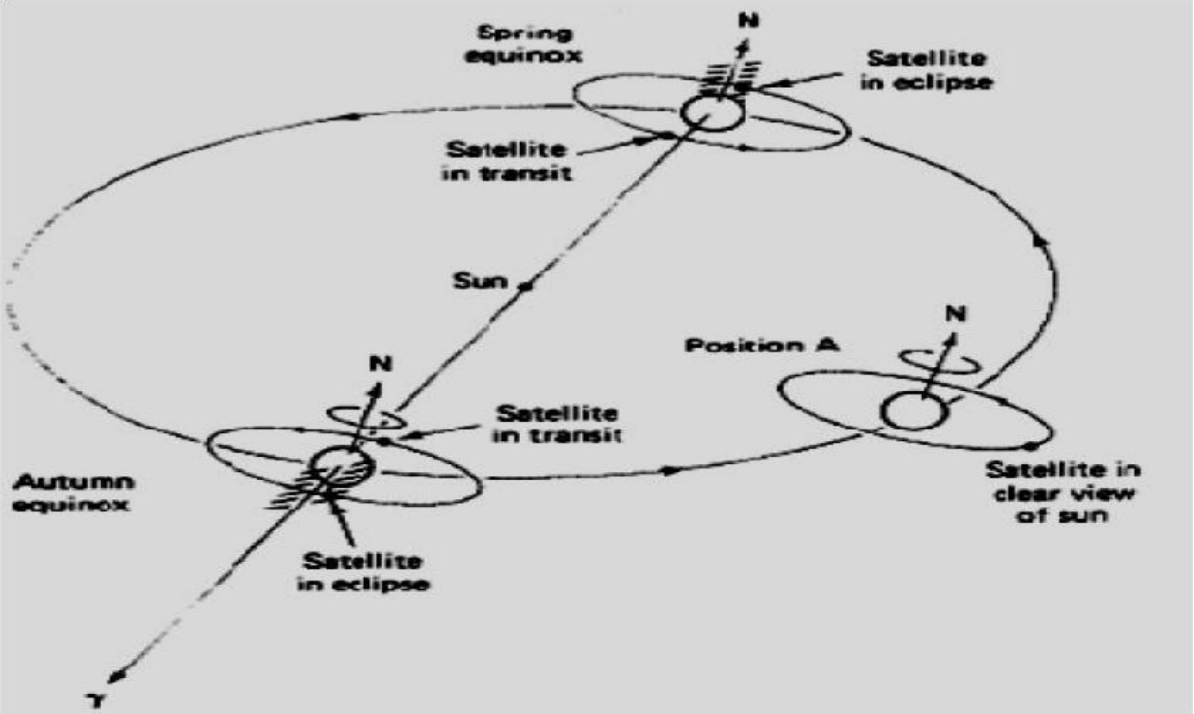

Figure: Earth Eclipse of a Satellite and Sun transit Outage

Launching Procedures :

Intoduction:

Low Earth Orbiting satellites are directly injected into their orbits. This cannot be done incase of GEOs as they have to be positioned 36,000kms above the Earth‟s surface.Launch vehicles are hence used to set these satellites in their orbits. These vehicles are reusable. They are also known as STS .

When the orbital altitude is greater than 1,200 km it becomes expensive to directly inject the satellite in its orbit.

About Hohmann Transfer Orbit: This manoeuvre is named for the German civil engineer who first proposed it, Walter Hohmann, who was born in 1880. He didn't work in rocketry professionally (and wasn't associated with military rocketry), but was a key member of Germany's pioneering Society for Space

Travel that included people such as Willy Ley, Hermann, and Werner von Braun. He published his concept of how to transfer between orbits in his 1925 book, The Attainability of Celestial Bodies.

The transfer orbit is selected to minimize the energy required for the transfer. This orbit forms a tangent to the low attitude orbit at the point of its perigee and tangent to high altitude orbit at the point of its apogee.