

DEFINITIONS OF TERMS FOR EARTH-ORBITING SATELLITES

For the particular case of earth-orbiting satellites, certain terms are used to describe the position of the orbit with respect to the earth.

Apogee: The point farthest from earth. Apogee height is shown as h_a in Fig. 2.3.

Perigee: The point of closest approach to earth. The perigee height is shown as h_p in Fig. 2.3.

Line of apsides: The line joining the perigee and apogee through the center of the earth.

Ascending node: The point where the orbit crosses the equatorial plane going from south to north.

Descending node: The point where the orbit crosses the equatorial plane going from north to south.

Line of nodes: The line joining the ascending and descending nodes through the center of the earth.

Inclination: The angle between the orbital plane and the earth's equatorial plane. It is measured

at the ascending node from the equator to the orbit, going from east to north. The inclination is shown as i in Fig. 2.3.

Prograde orbit: An orbit in which the satellite moves in the same direction as the earth's rotation. Also known as a direct orbit. The inclination of a prograde orbit always lies between 0 and 90° .

Retrograde orbit: An orbit in which the satellite moves in a direction counter to the earth's rotation. The inclination of a retrograde orbit always lies between 90 and 180° .

Argument of perigee: The angle from ascending node to perigee, measured in the orbital plane at the earth's center, in the direction of satellite motion.

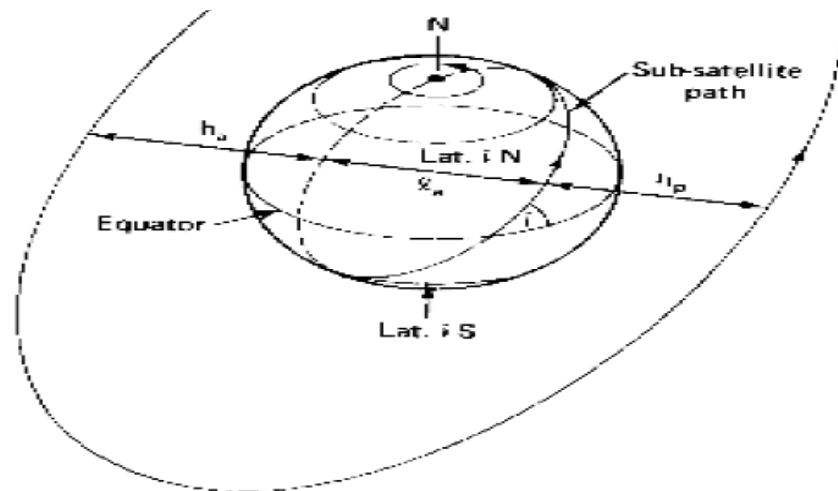


Figure 2.3 Apogee height h_a , perigee height h_p , and inclination i . l_a is the line of apsides.

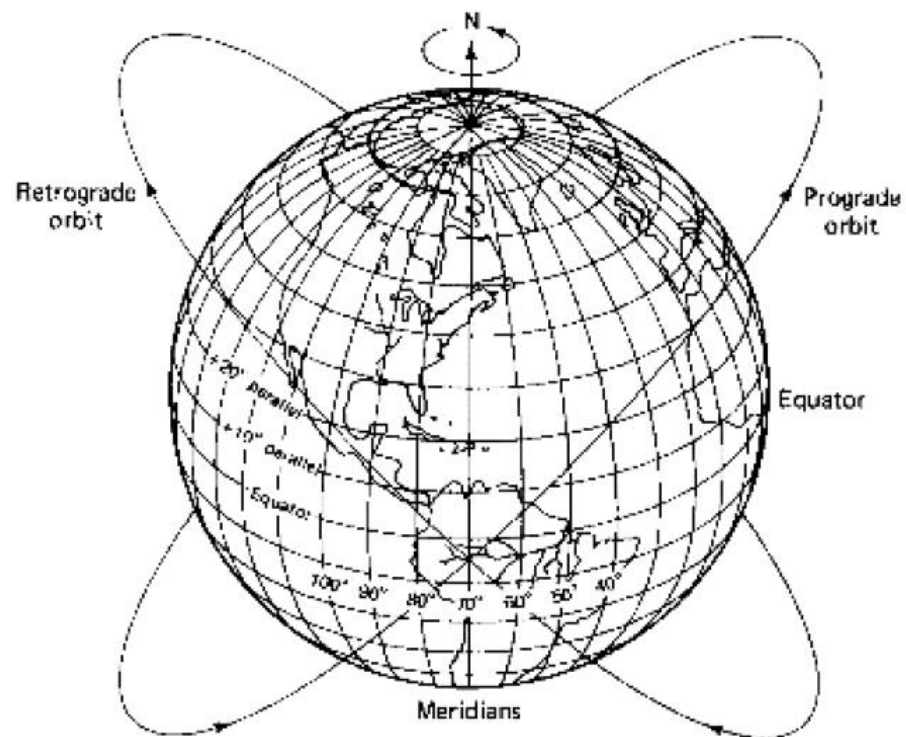


Figure 2.4 Prograde and retrograde orbits.