

7.0 Orbital Mechanics Terms

Figure 7-1 shows the relevant orbital mechanics terms used in the definition of an Orbit and the Solar vector. For more details, please refer to a standard orbital mechanics textbook, such as "Orbital Mechanics" by Vladimir A. Chobotov, Editor, AIAA Education Series.

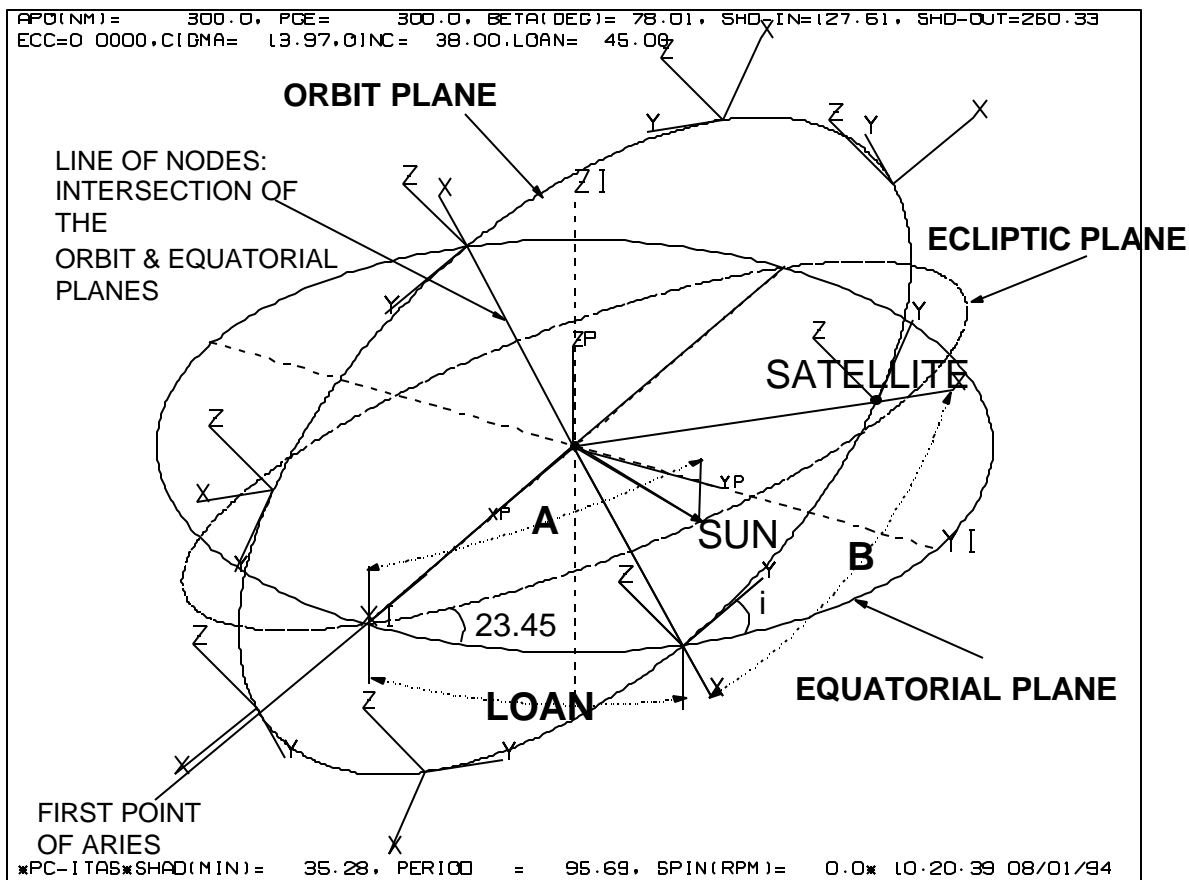


Figure 7-1. Orbital Mechanics Terms

In an Inertial (fixed) frame of reference, the Ecliptic plane has a fixed inclination of 23.45 degree from the Equatorial plane. The Sun vector remains, and it moves, in the Ecliptic plane.

The intersection of the orbit plane and equatorial plane is called '**Line of Nodes**', while the intersection of the Ecliptic and Equatorial planes is called '**First Point of Aries**'; the angle between the preceding two lines of intersections is called the '**Longitude Of the Ascending Node**'.

temperatures (when available). Other options, such as selective surface plots, hidden-line removal, and plots with phantom lines (dashed lines) may also be exercised. This option will also allow you to display the on-orbit orientations of a vehicle with user-defined vehicle (and its axes) size. The graphics commands are invoked by either the alphabetic characters, the function keys F1-through-F10 (and their variations, such as Shift-F1, etc.) or by numbers "0"-through"9". A summary description of these commands are shown in Figure 5-89.

Figure 5-87 shows an Orbital Graphics (Vehicle Axes Only) picture when "1" is pressed from the previous menu. Options "2", "3", and "4" will generate different views of the same Orbital Graphics.

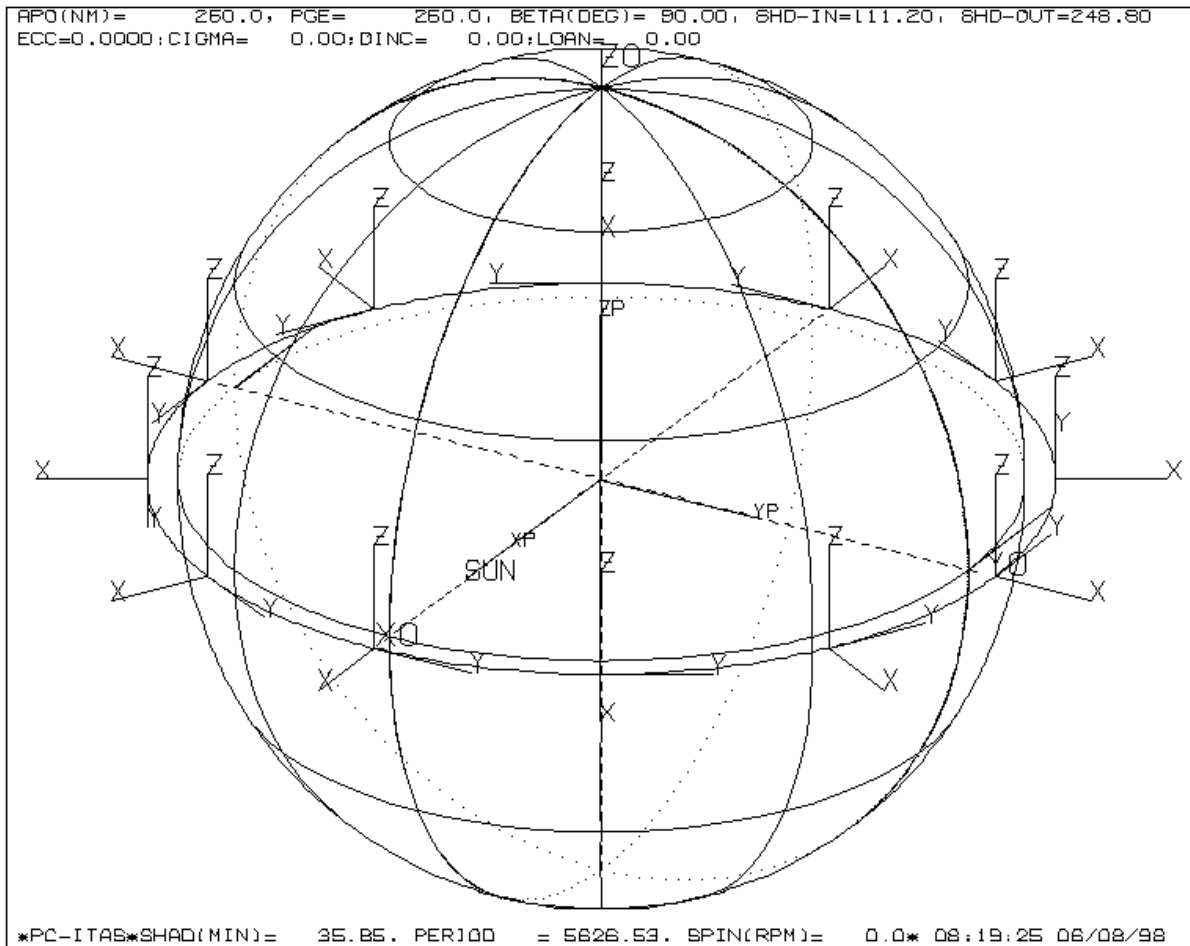


Figure 5-87. PC-ITAS/plus Orbital Graphics, Option "1"

The above picture shows the spacecraft Vehicle Coordinate system (Axes) at user-defined (Orbital SetUp menu, Section 5.2.4.1, Figure 5-62) angular increments. The Sun vector is also shown as well as other pertinent orbital parameters, such as the shadow entry- and exit-points, the shadow duration, Beta, and Cigma angles, etc.