Chapter 3 - Encounter Geometries

Contents

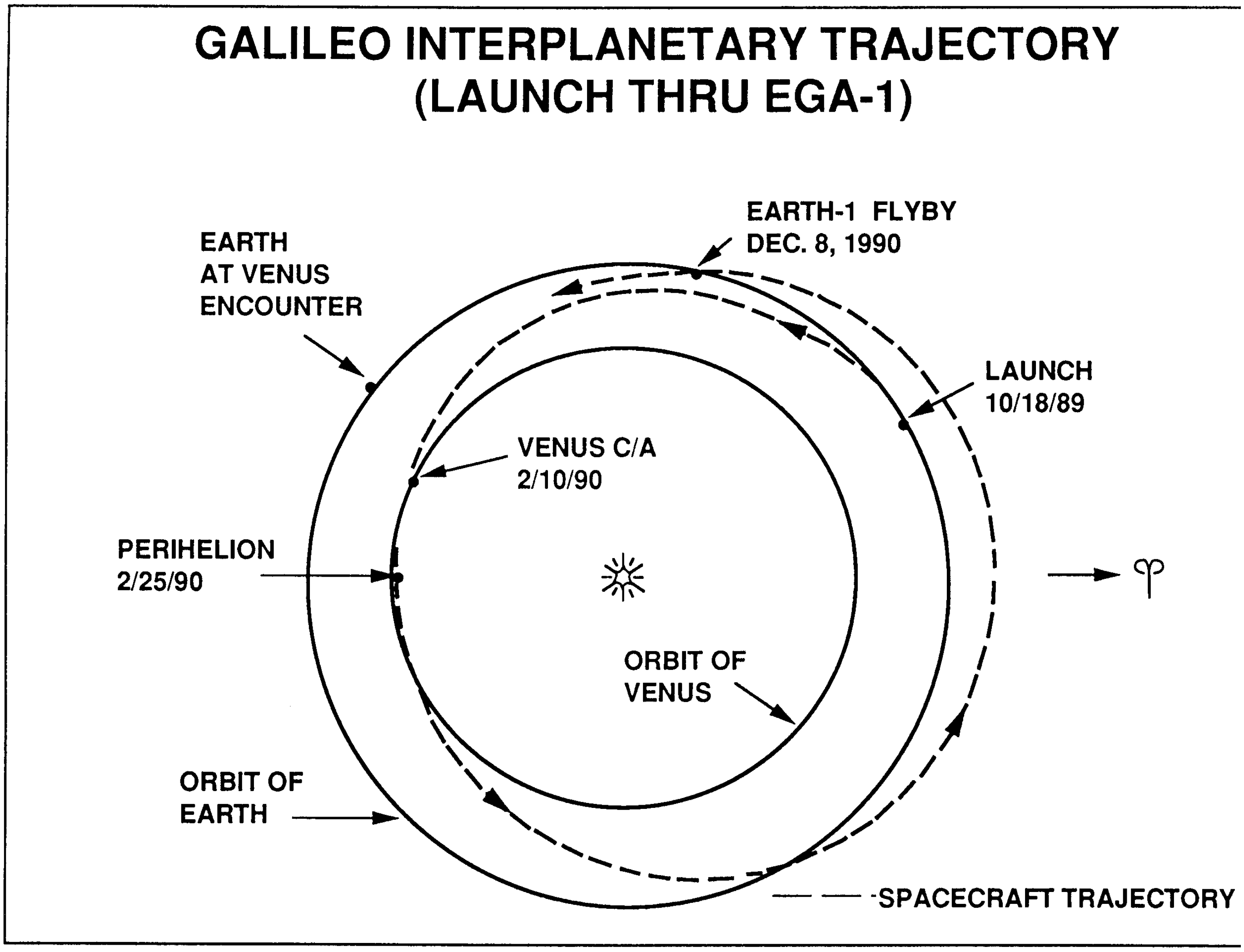
Introduction to Chapter 3

This chapter contains diagrams of various aspects of geometry for the Venus Encounter. These figures were produced for the Galileo project by several project teams.

The figures on pages 3 and 4 show the trajectory of the Galileo spacecraft from launch thru E1 (EGA-1) and from launch thru Jupiter Orbit Insertion.

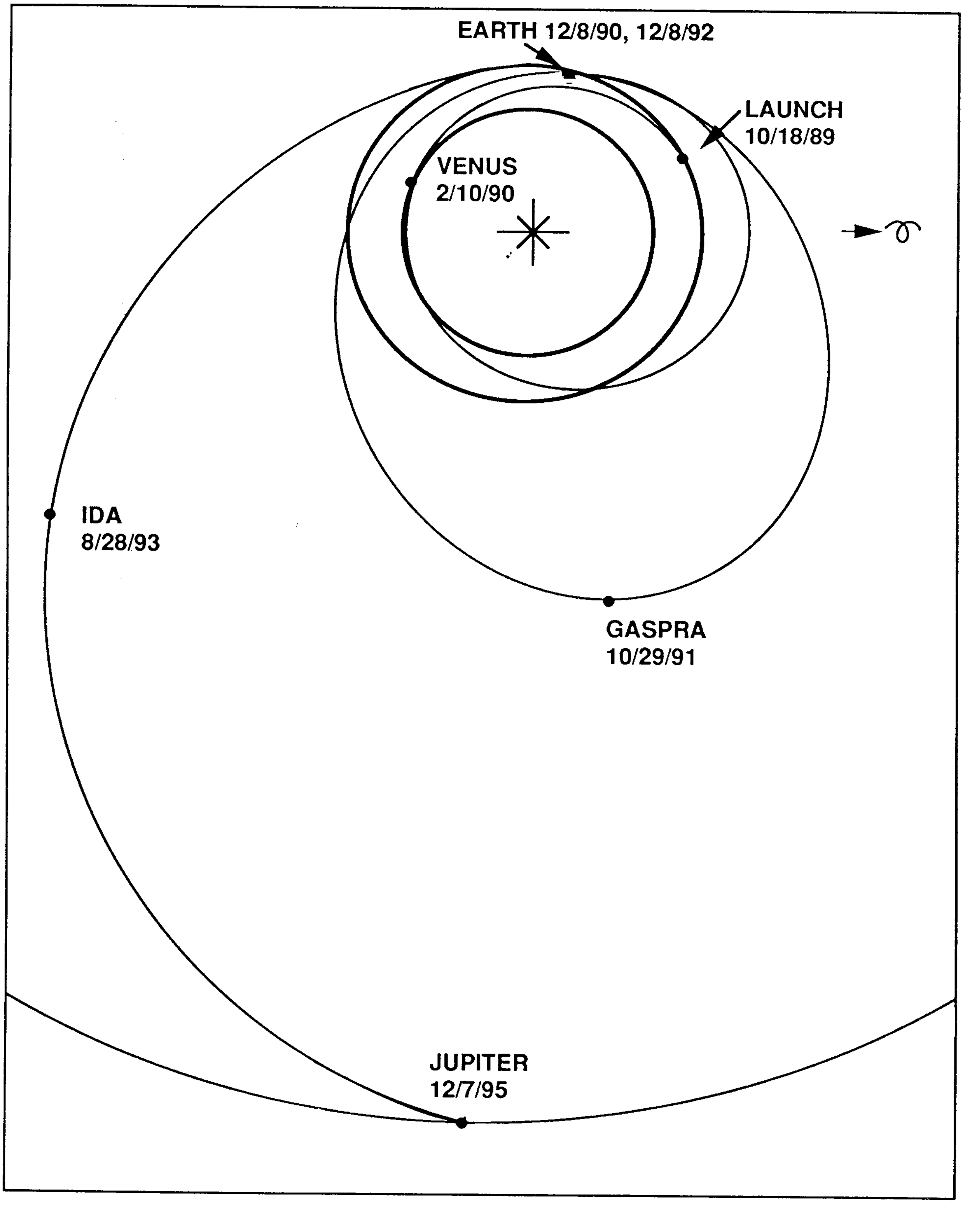
The figure on page 5 is a pole view of the spacecraft’s trajectory past Venus at closest approach, +/- 2 hours. The figure on page 6 shows the spacecraft’s ground track on Venus at closest approach, +/- 2 hours.

The figures on pages 7 thru 17 show geometric quantities relating the spacecraft’s position and orientation relative to Venus as a function of time: Venus-spacecraft range in Venus radii and km, Venus’ angular semi-diameter, Sun-Venus-spacecraft angle, Sun-spacecraft-Venus angle, Venus clock angle, Venus-centered latitude and west longitude of the sub-spacecraft point and the smear rate across Venus in deg/sec, km/sec and mrad/sec.

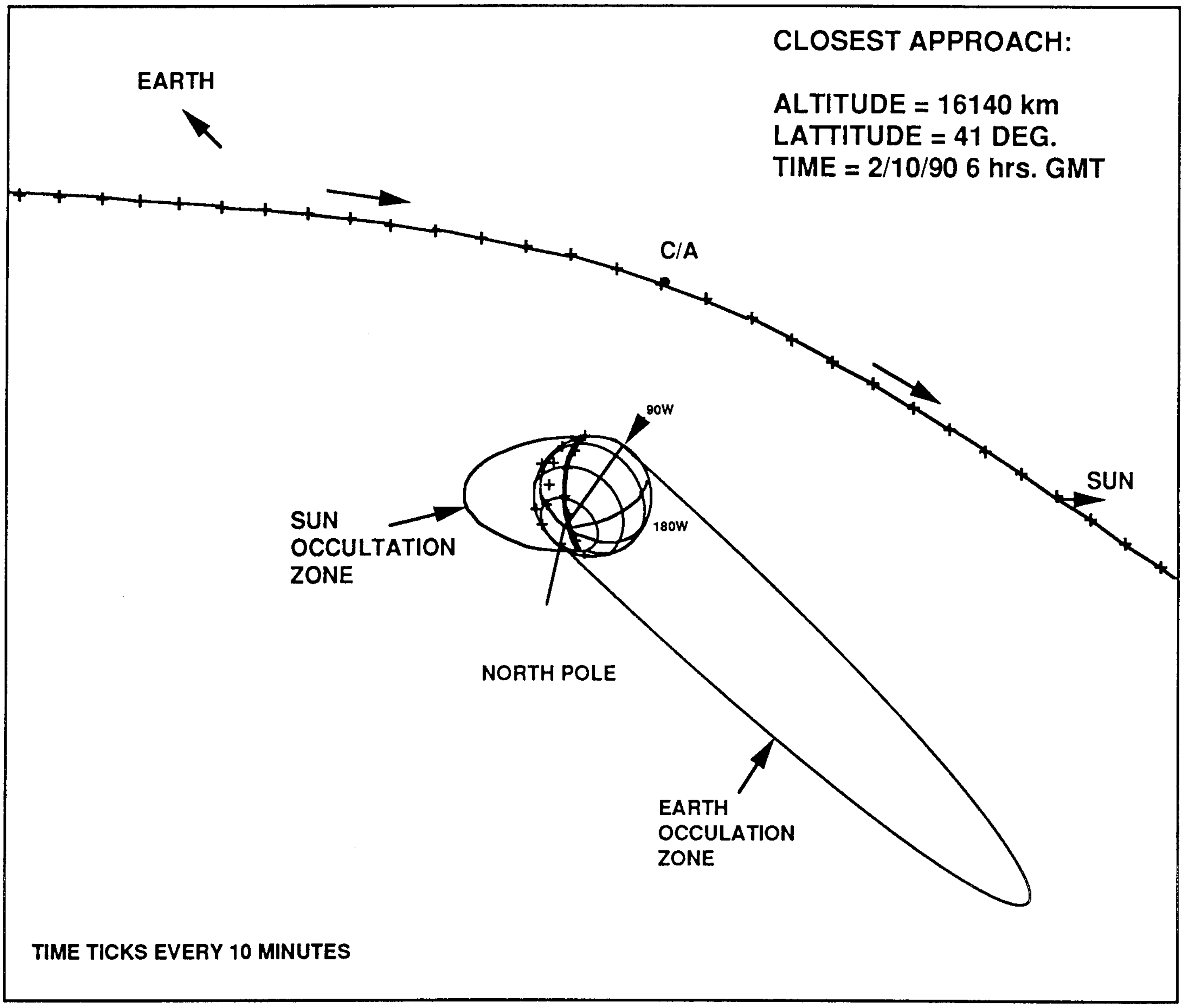


Galileo Interplanetary Trajectory (Launch through EGA-1). This is the first phase of its mission.

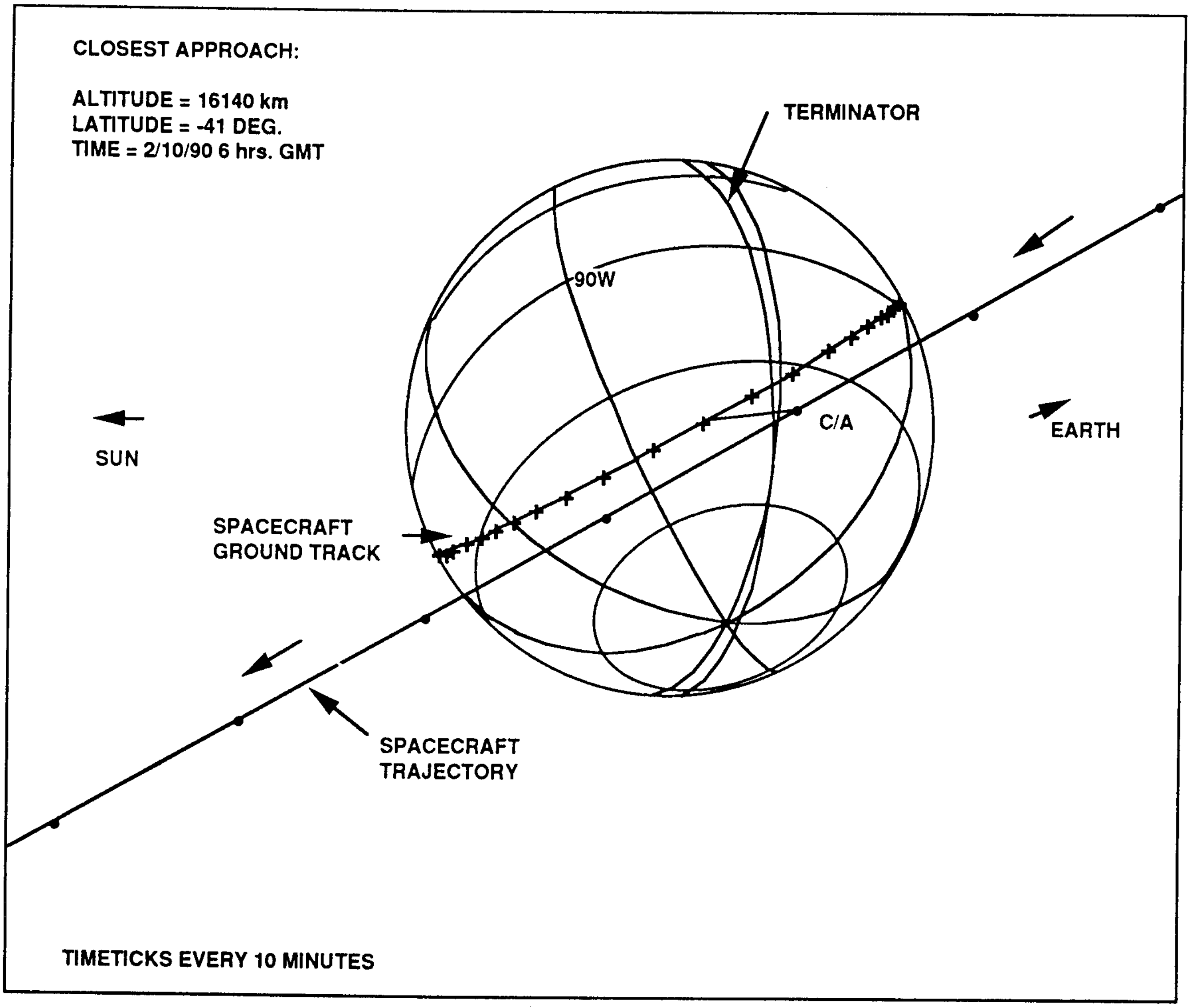
GALILEO INTERPLANETARY TRAJECTORY



Galileo Interplanetary Trajectory from Launch through Jupiter Orbital Insertion.



VENUS FLYBY (TRAJECTORY POLE VIEW)



VENUS CLOSEST APPROACH