

Requires Keplerian orbital elements of Earth, Space craft and EROS (433)

1

Calculate state vectors for Earth & Space craft (Geocentric)

Calculate state vectors for Eros. \mathbf{r}_2

Convert State vectors of Space craft; Geo. to Helio. \mathbf{r}_1

Solve for lambertian velocities, \mathbf{v}_1 and \mathbf{v}_2 after δt_0 time.

Solve for μ_1, μ_2 (orbital elements) of the transfer orbit using $\mathbf{r}_1, \mathbf{r}_2, \mathbf{v}_1, \mathbf{v}_2$.

2

$\mathbf{r}_3 = \mathbf{r}_2$

Solve for lambertian velocities, \mathbf{v}_3 and \mathbf{v}_4 after δt_1 time.

Calculate state vectors for Earth and spacecraft in the desired LEO after $\delta t_0 + \delta t_1$ time

Convert State vectors of Space craft; Geo. to Helio. \mathbf{r}_4

Solve for μ_3, μ_4 (orbital elements) of the transfer orbit using $\mathbf{r}_3, \mathbf{r}_4, \mathbf{v}_3, \mathbf{v}_4$

3

$$|\Delta \mathbf{v}| = |\mathbf{v}_2 - \mathbf{v}_1| + |\mathbf{v}_4 - \mathbf{v}_3|$$

$$C_3 = |\mathbf{v}_2 - \mathbf{v}_1|^2 + |\mathbf{v}_4 - \mathbf{v}_3|^2$$