

For a space craft the equations of motion are of the form

$$\ddot{\vec{r}} = \vec{F}(\vec{r}, \vec{v}, t, \lambda_j)$$

where \vec{F} is analytic in all variables and t and parameters λ_j .

- a) Therefore solution is analytic and thus continuous in the initial conditions. Consequently, if the time is not too large, small errors in the initial conditions should give small errors in the trajectories.
- b) Also, the solution will be analytic and thus continuous in the parameters.

Consequently, small errors in the parameter values should give small errors in the trajectories if the time is not too large.