



Note: This file can not replace watching the video lecture. Because the video lecture contains more explanation through graphical elaboration.

# Certified Junior Astronaut Training Course



## Satellite lifetime and factors influencing it ( Part 2 )





This lecture will answer the following inquiry:



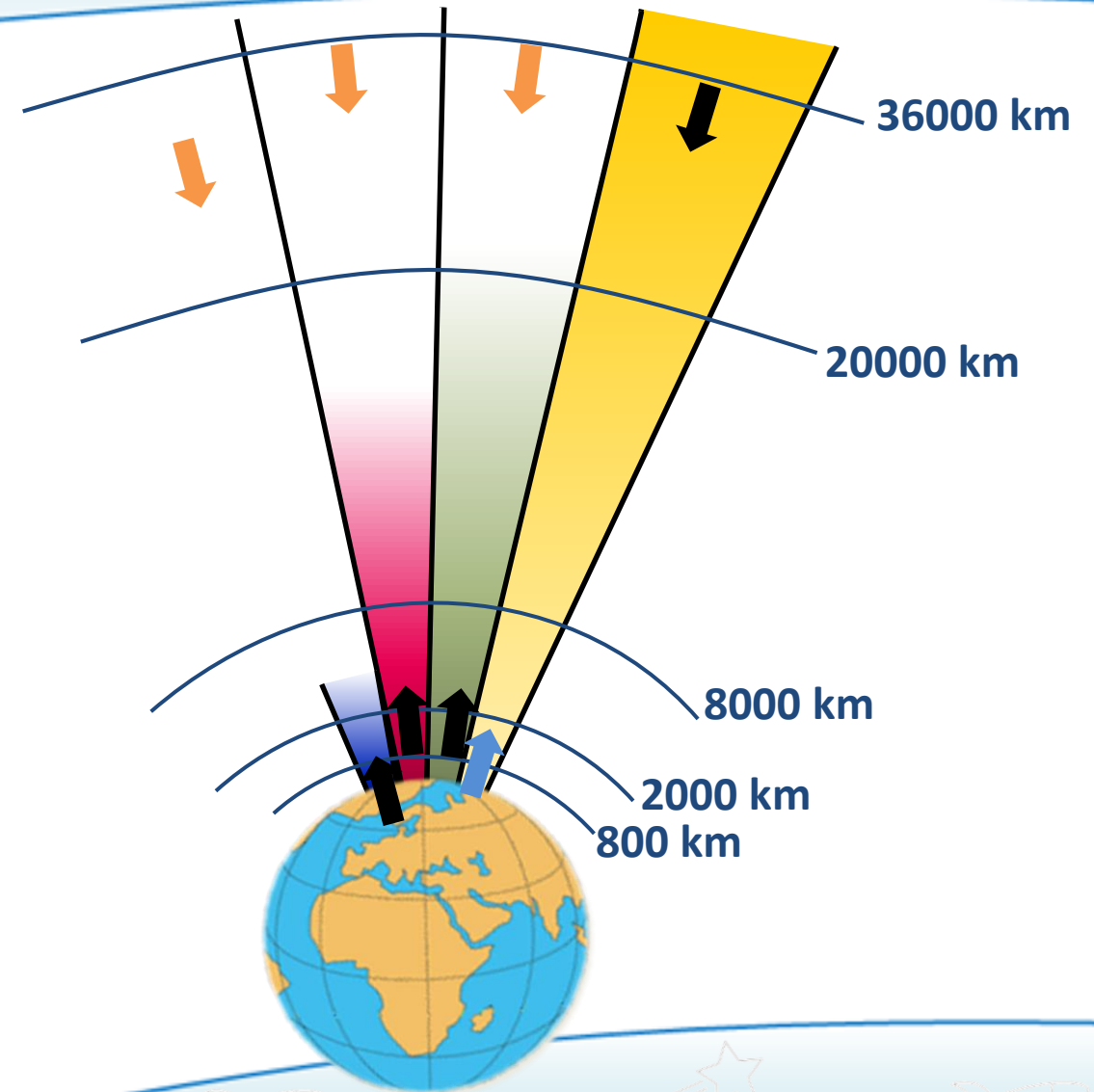
**What are the Perturbations that influence a Satellite's lifetime?**





# What are the Perturbations that influence a Satellite's lifetime?

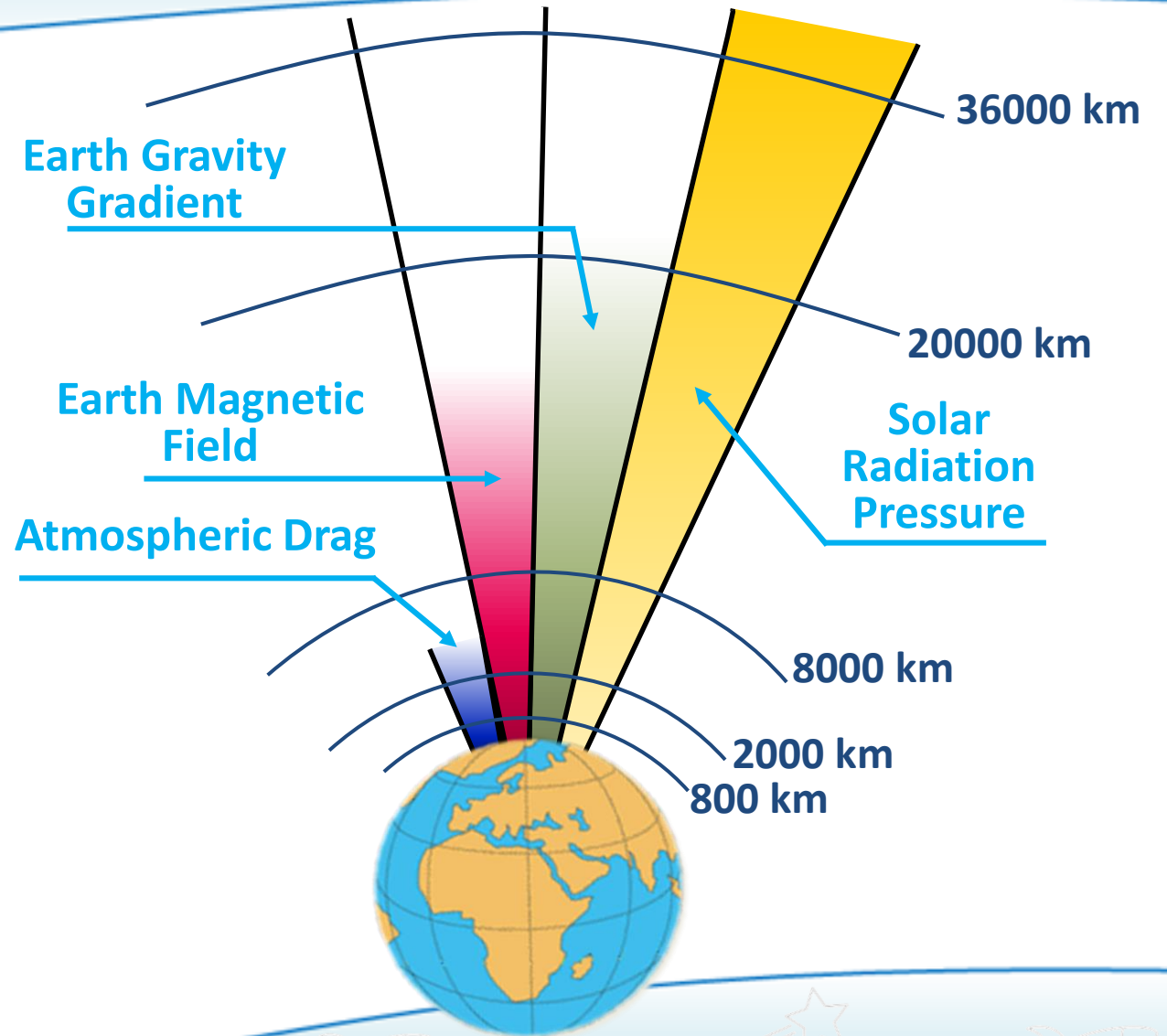
- + The amount of Perturbations' that effects the satellite orbit varies according to elevation from earth surface. Some Perturbations have low effect as we go farther from earth surface; while other types of Perturbations have low effect as we go nearer to earth surface.
- + The color gradation shown in front of us demonstrates the most significant four types of Perturbations. The effect of these types increases at elevations where the color degree gets darker; while the effect decreases at elevations where the color degree gets lighter.



# Cont.. What are the Perturbations that influence a Satellite's lifetime?

## These four Perturbations are called:

- Atmospheric Drag:** It is caused by frequent collisions of gas molecules with the satellite in the upper levels of the atmosphere.
- Earth Magnetic Field:** It is caused by the effect of magnetic fields emitted from earth core.
- Earth Gravity Gradient:** It results from the effect of the unsteady earth gravity due to irregular elliptical earth surface and changes in its elevation.
- Solar Radiation Pressure:** It results from the effect of light and gases emitted from the sun at a high speed.





Thanks for your undivided attention

