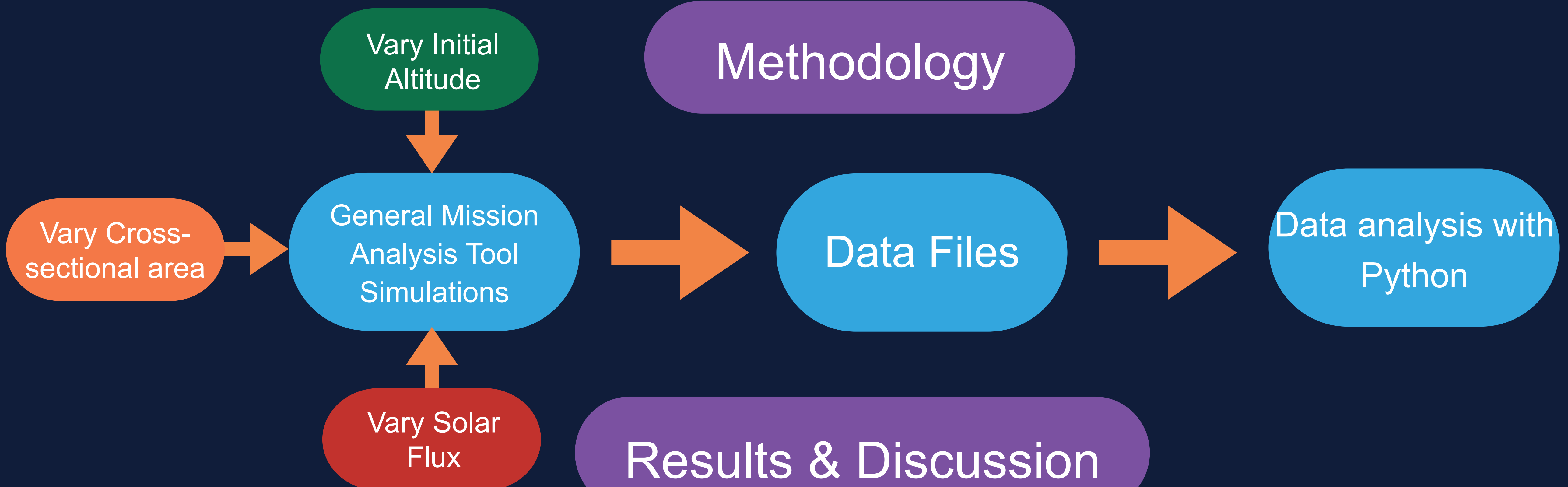


IN-ORBIT LIFETIME OF SATELLITES

Research Question

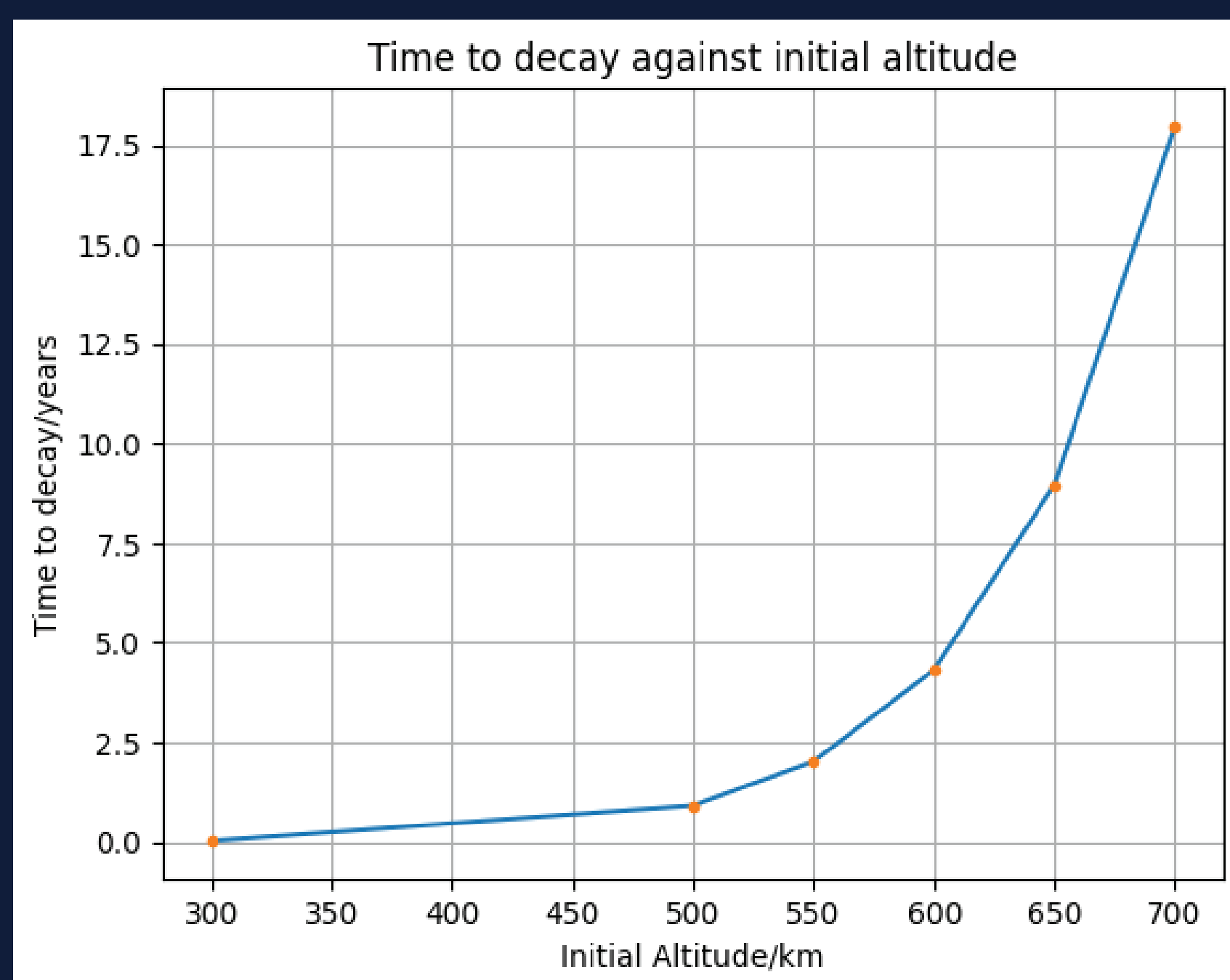
What factors affect the decay of satellite orbits in low-Earth orbit?

Methodology



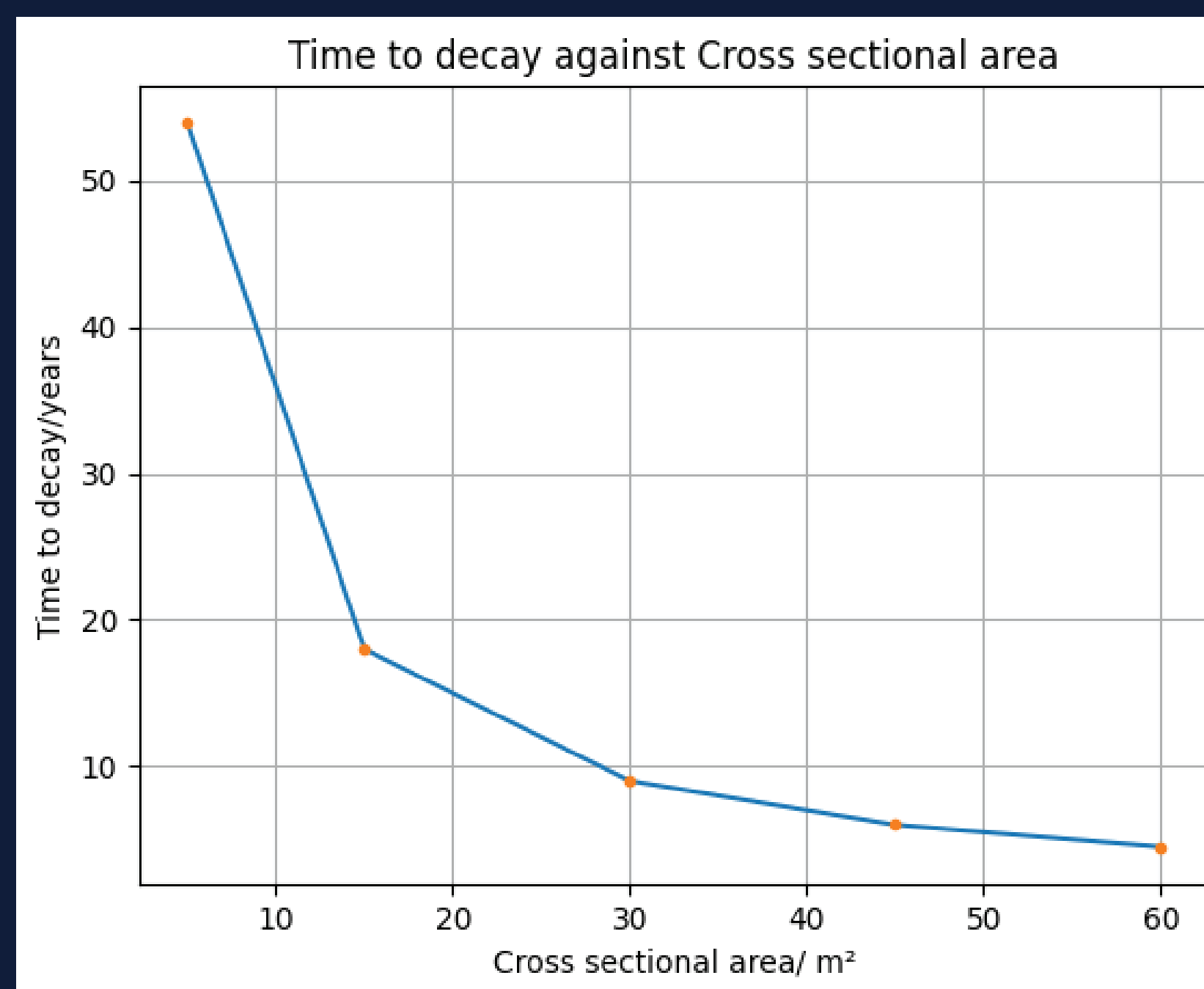
Results & Discussion

1. Initial Altitude



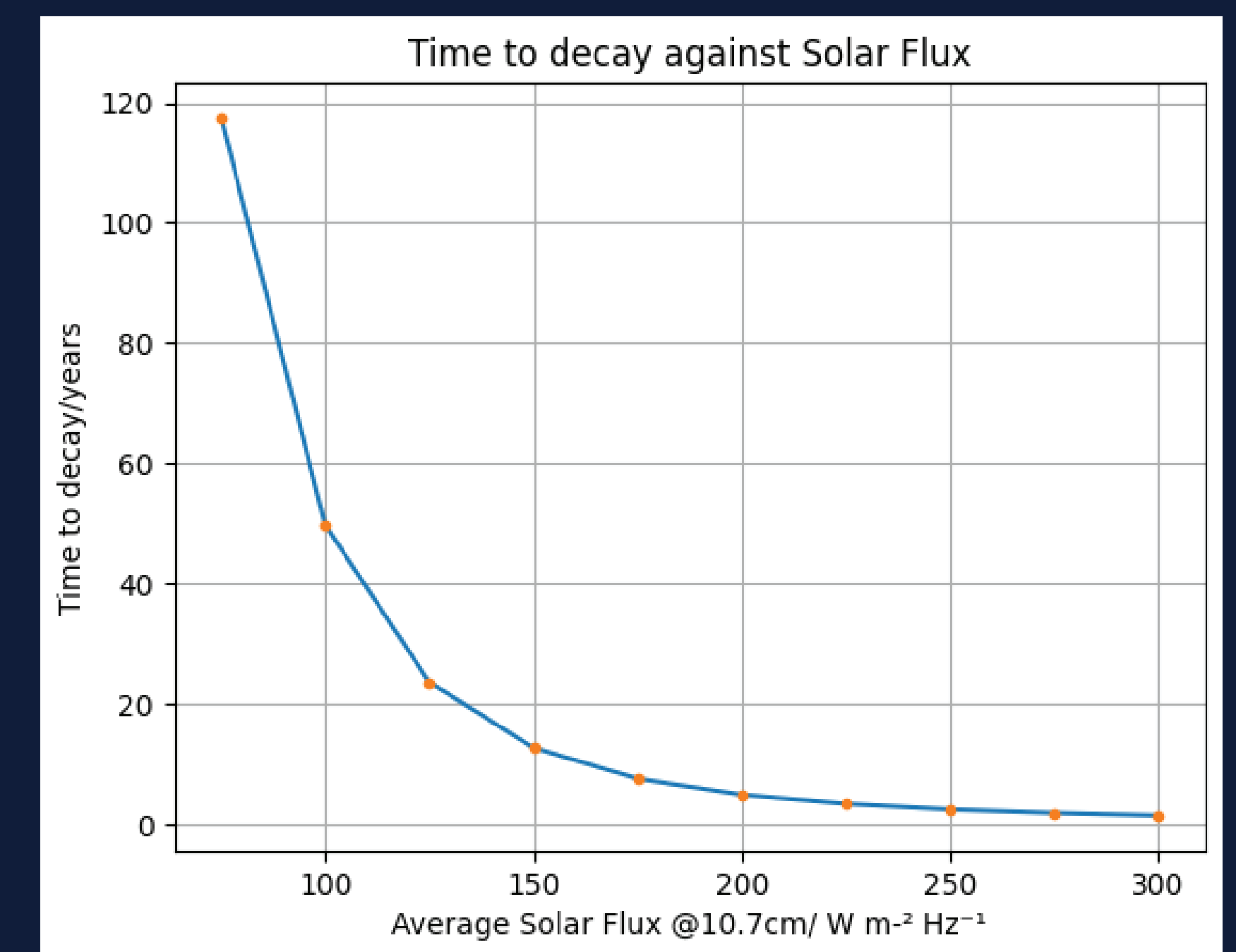
Experiments verify that an increase in initial orbital altitude results in an exponential increase in time to decay

2. Cross-sectional area



Experiments verify that an increase in cross-sectional area results in a decreased time to decay

3. Solar Flux



Experiments verify that an increase in solar flux results in an exponential decrease in time to decay

Conclusion and Future Work

While this project has furthered my understanding of satellite orbits, I believe there is much more to be discovered. I would like to thank my mentors for their continued support, as well as DSTA for the opportunity to do this project. Future work could involve investigations into space debris mitigation by exploiting these factors, as well as development of models with higher fidelity.

Member :

Joshi Om Vaibhav, Raffles Institution

Mentors:

Lee Xun Yong, Defence Science and Technology Agency

Samuel Joo Jian Wen, Defence Science and Technology Agency