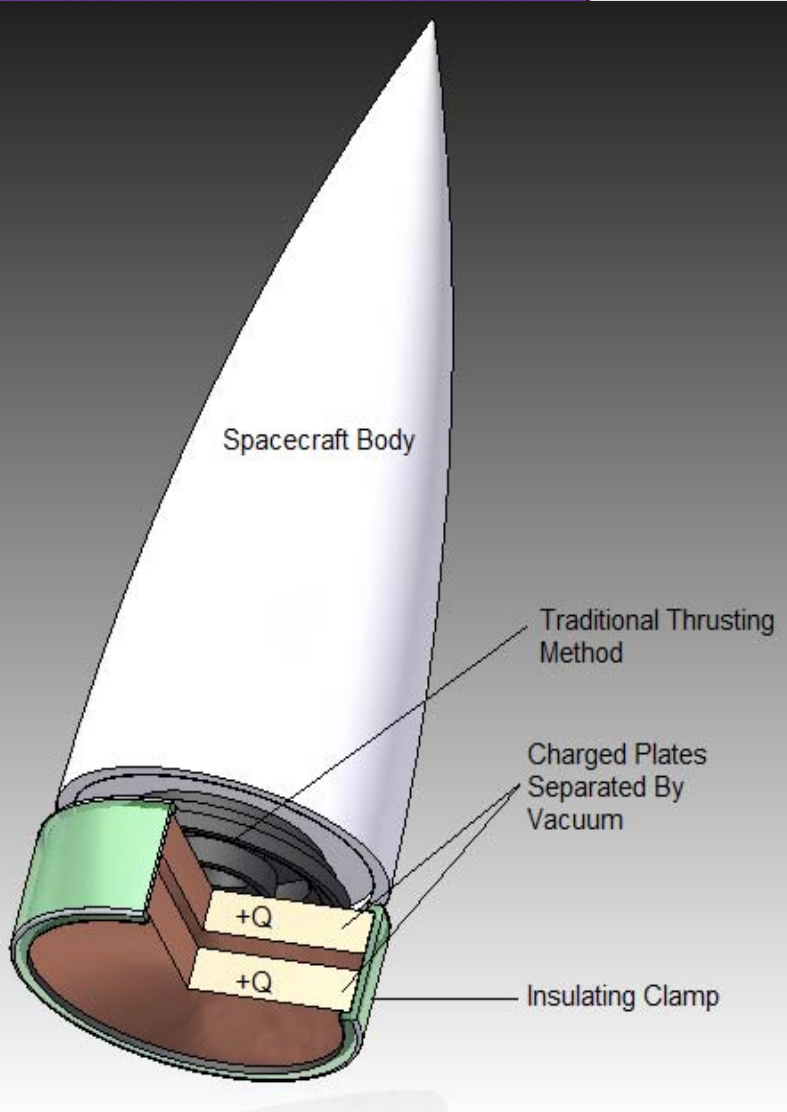


Launching Spacecrafts Using Electrostatic Force

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Objective

To assess the viability of using electrostatic force as a substitute for the combustive chemical force of fuels currently being used, taking into consideration the effects of air resistance and gravitational pull as well as the electrostatic force.

Background

The force between two charged objects is directly proportional to the charge on each object and inversely proportional to the square of the distance between them.

Method

A series of calculations were made on a sample 700 kg mass. A spreadsheet was used to link all the variable quantities in their respective physical equations. These equations, in turn, link vertical velocity with height.

Theory

There would be a certain charge q when deposited on the plates would launch the spacecraft into space (100 km height).

Results

The spacecraft would stop at 3km altitude due to excessive air resistance, even with theoretically high charge on the plates.

Conclusion

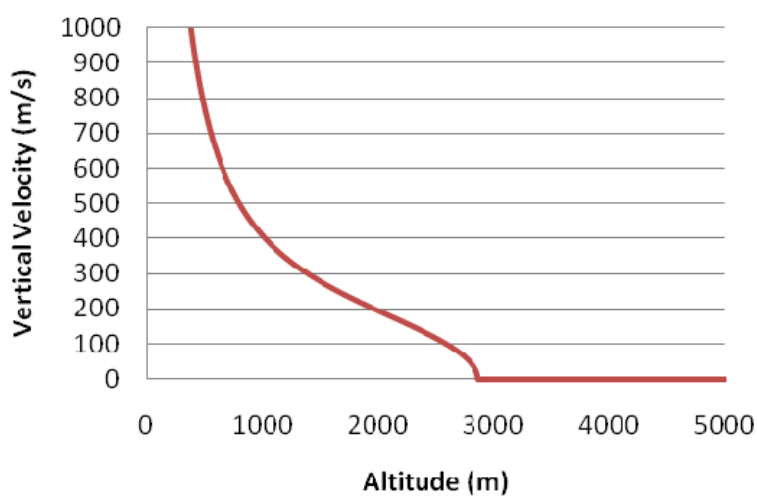
Launching a spacecraft solely using one operation of electrostatic force is not viable.

Future Plans

A combination of propulsion methods may be used or a series of plates can be attached to the spacecraft and every charged plate would be released to give extra thrust.



700 kg Spacecraft Launch



References:

- National Aeronautics and Space Administration (NASA)
- European Space Administration (ESA)